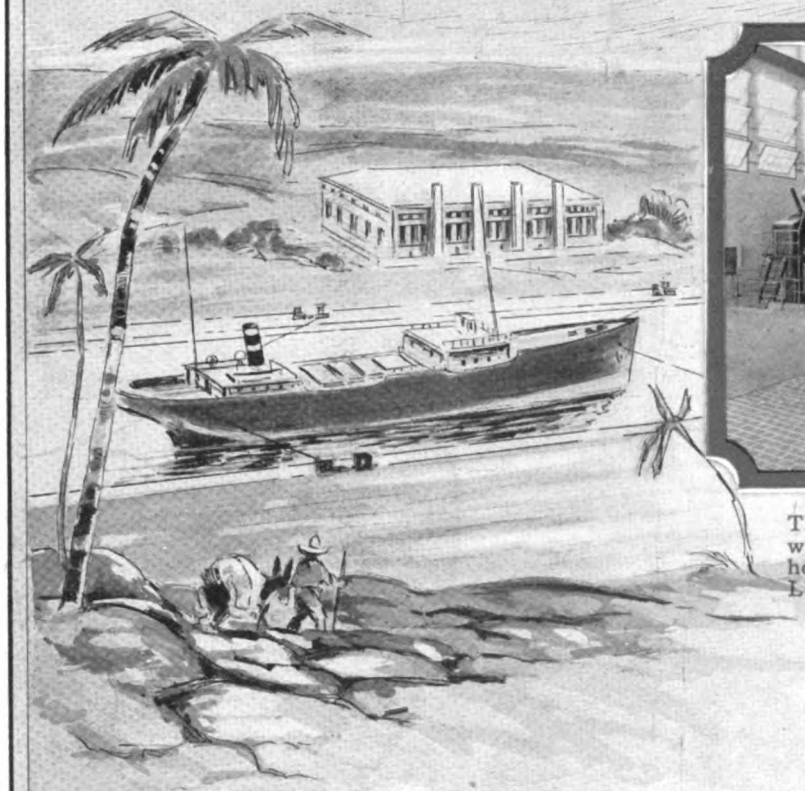
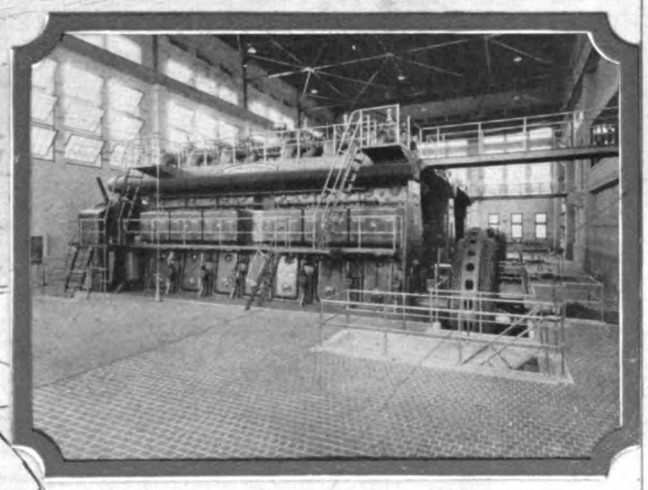
NORDBERG
at PANAMA





These three Nordberg Diesel Engines with a total capacity in excess of 12,000 horsepower are installed at the Miraflores Locks at the Pacific end of the Canal.

WHEN passing thru the Panama Canal, do not fail to visit America's largest Diesel Plant. Owners of both motor and steam ships should instruct their employees to take advantage of this opportunity. That Nordberg should be chosen to build the engines for the outstanding plant in the Western Hemisphere is evidence of the record back of this Company and its Products. A complete line of Diesels is also available for Marine service.

NORDBERG MFG. CO MILWAUKEE

DIESEL ENGINES
for MARINE SERVICE

"MOTORSHIP" for January, 1928. Vol. XIII, No. 1. A monthly journal published by MOTORSHIP, at 220 West 42nd Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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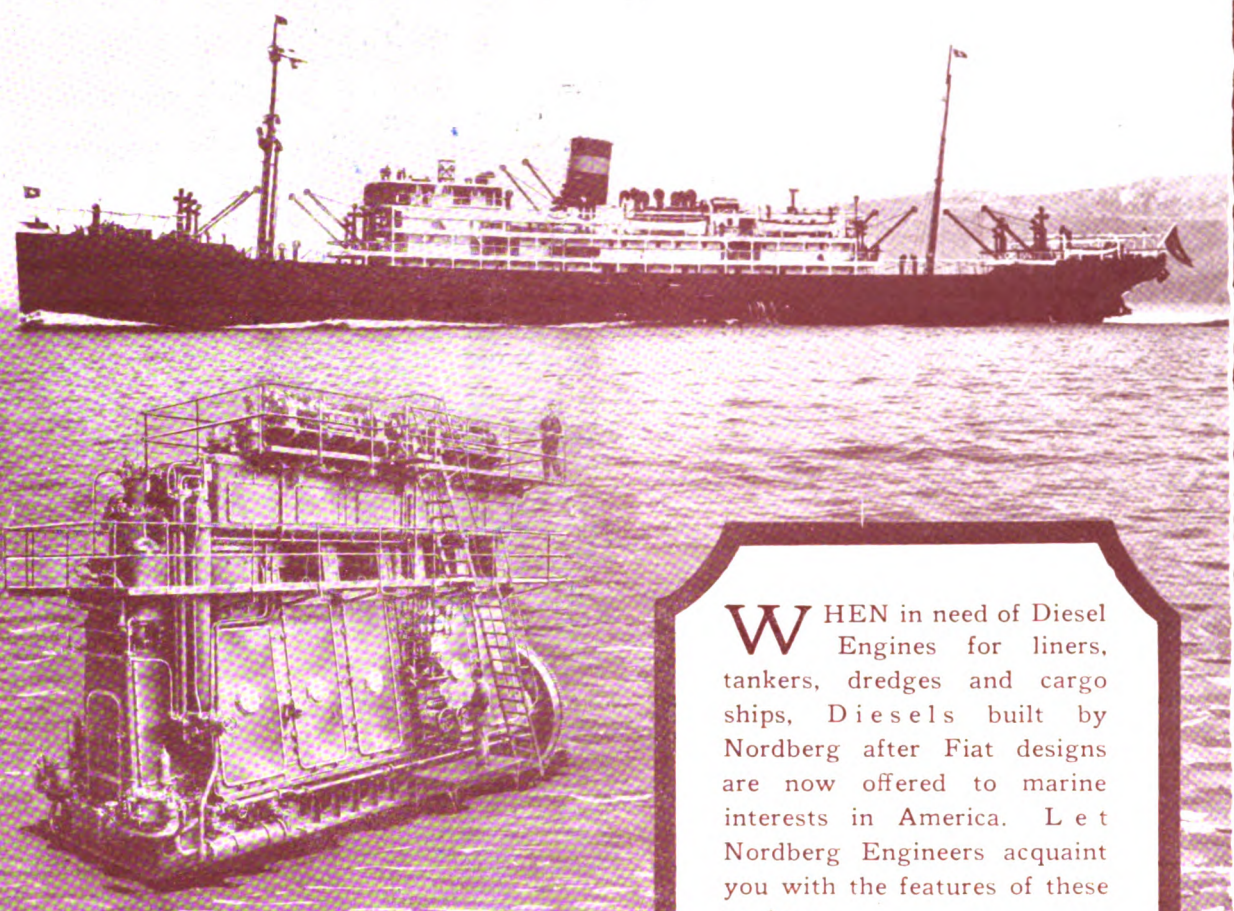
NORDBERG



WHEN in need of Diesel Engines for liners, tankers, dredges and cargo ships, Diesels built by Nordberg after Fiat designs are now offered to marine interests in America. Let Nordberg Engineers acquaint you with the features of these engines.

Nordberg Mfg. Co.
Milwaukee, Wis.

NORDBERG-FIAT
MARINE DIESEL ENGINES

"MOTORSHIP" for February, 1928. Vol. XIII, No. 2. A monthly journal published by MOTORSHIP, at 220 West 42nd Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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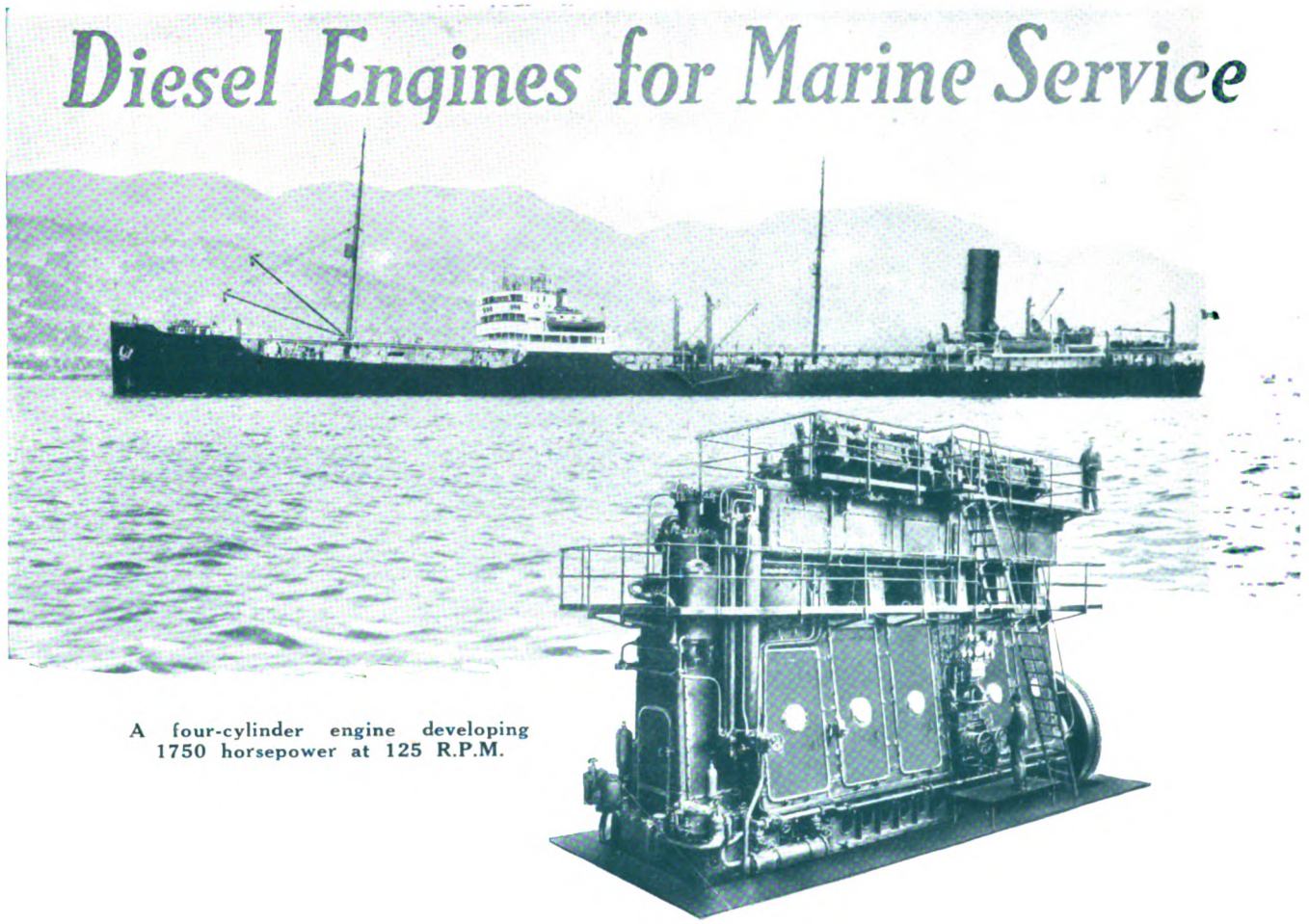
Diesel Engines for Marine Service



A four-cylinder engine developing 1750 horsepower at 125 R.P.M.

Engines for Motorships

DIESEL ENGINES
For
Cargo Ships
Tankers
Dredges
Ferries

of any application of main propelling units, Diesel-electric or auxiliary drive especially where engines of larger capacities are required.

When again in the need of power for marine service, there is a Nordberg size and type that will render that economical and dependable operation demanded in modern marine practice. Nordberg has long held a predominating position in the stationary field. Facilities for building Diesel Engines are unexcelled. With the complete line of marine Diesels now offered, users of this class of equipment can also avail themselves of the advantages long afforded to the prominent users of large Diesels in America.

Whether it is new construction or conversion, investigate the merits of Nordberg Engines.

Nordberg Mfg. Co., Milwaukee, Wis.

NORDBERG

HIP" for March, 1928. Vol. XIII, No. 3. A monthly journal published by MOTORSHIP, at 220 West 42nd Street, New York, N. Y. Entered as class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign. This issue published in two sections of which this is section one.

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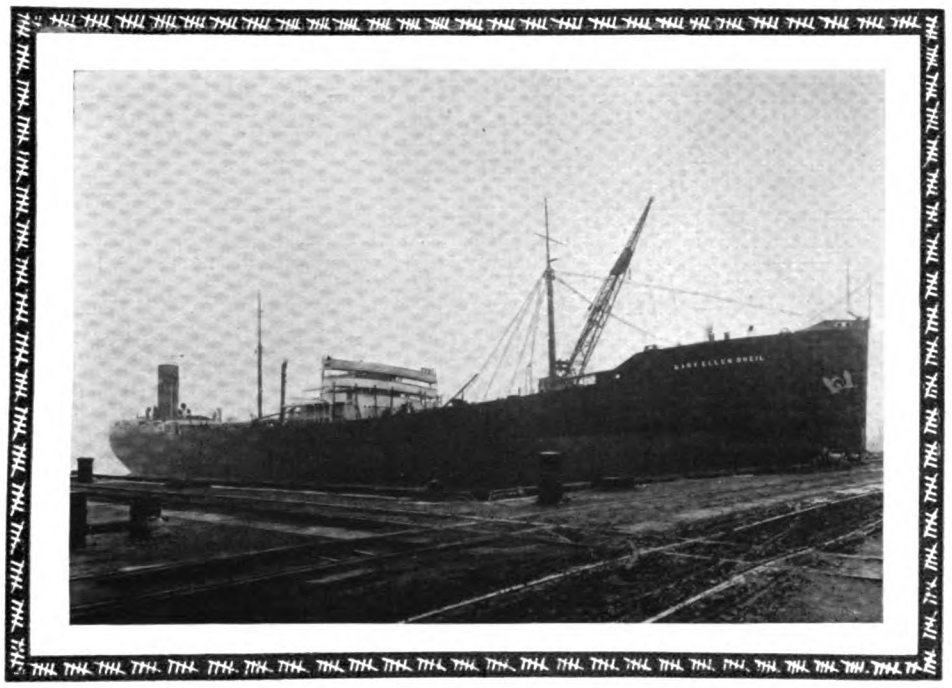
THE ISHERWOOD SYSTEM



DIESEL TANKER MARY ELLEN O'NEIL

Built by the Sun Shipbuilding & Dry Dock Co.

ON THE

BRACKETLESS SYSTEM

(PATENT)

Eliminates Bulkhead Brackets. Eliminates Bulkhead Leakage. Greatly simplifies construction. Greatly reduces cost of upkeep and cost of damage repairs.

Substantially increases the longitudinal strength beyond the well-tried

"ISHERWOOD SYSTEM"

The Ideal Construction for longitudinal strength.

Increased deadweight. Improved ventilation.

Reduced vibration. Ideal for Motorships.

For Particulars Apply:

SIR JOSEPH W. ISHERWOOD & CO. LTD.

17 Battery Place, New York

4, Lloyd's Avenue, London, E. C. 3

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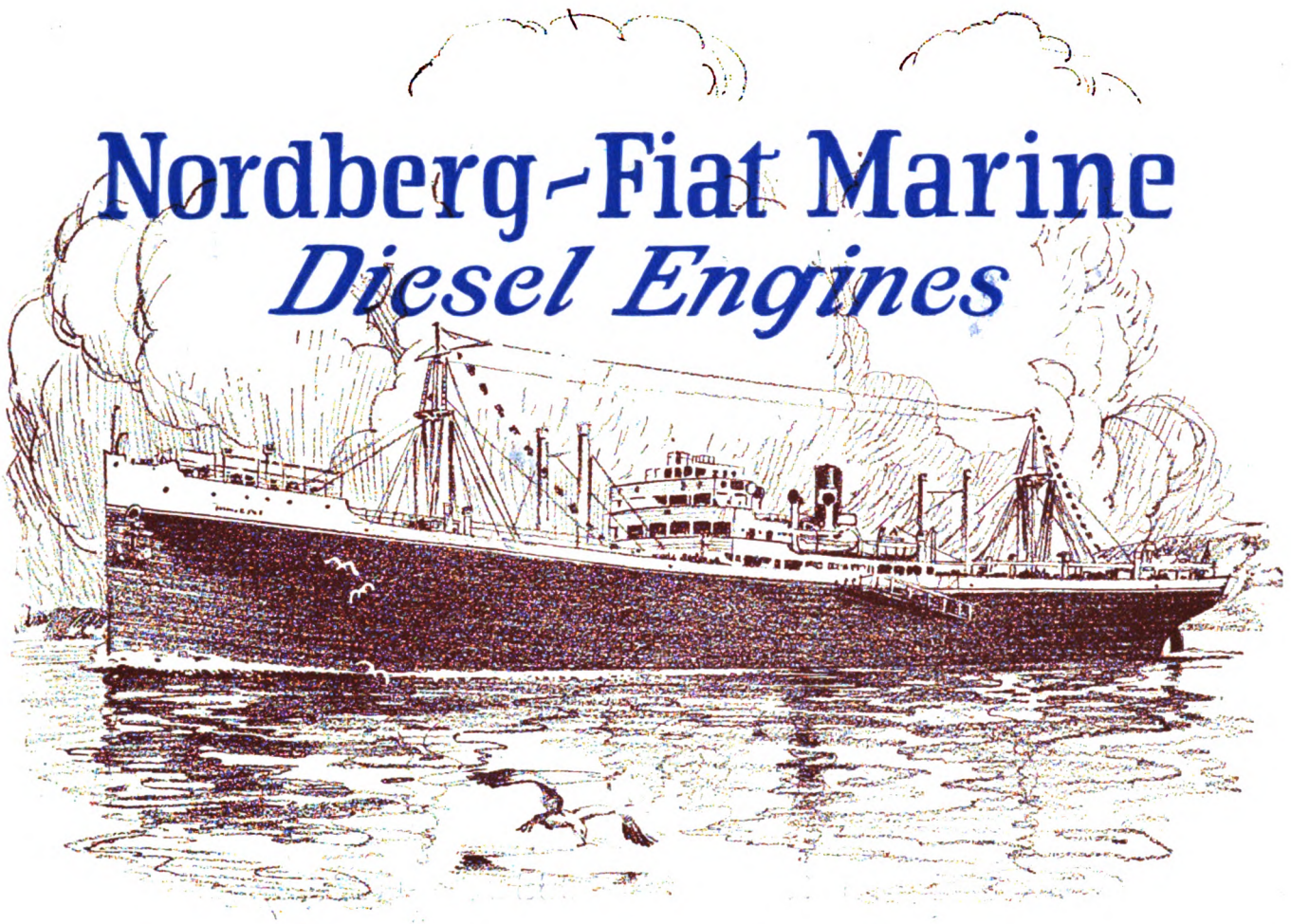
Nordberg-Fiat Marine
Diesel Engines



When a Diesel Unit is Considered

About 100,000 horsepower of Nordberg Diesel Engines are in service today. They are found in some of the largest Diesel plants of North America. They include the largest of their type and in their particular fields of service. The reputation they hold is evidence of the kind of service they render.

With the performance records back of Nordberg Diesels, combined with unusual engineering and manufacturing facilities for building marine Diesels of Fiat design for which Nordberg is licensee, engines built by Nordberg can be depended upon to give the kind of performance expected from modern power units.

Whether it is the main propelling unit, one for Diesel electric drive, or for auxiliary service, a Nordberg design may exactly meet your requirements.

Those who are considering the purchase of Marine Diesel Engines, whether for new construction or conversion, should investigate the merits of Nordberg Engines.

Nordberg Mfg. Co., Milwaukee, Wis.

NORDBERG

"MOTORSHIP" for April, 1928. Vol. XIII, No. 4. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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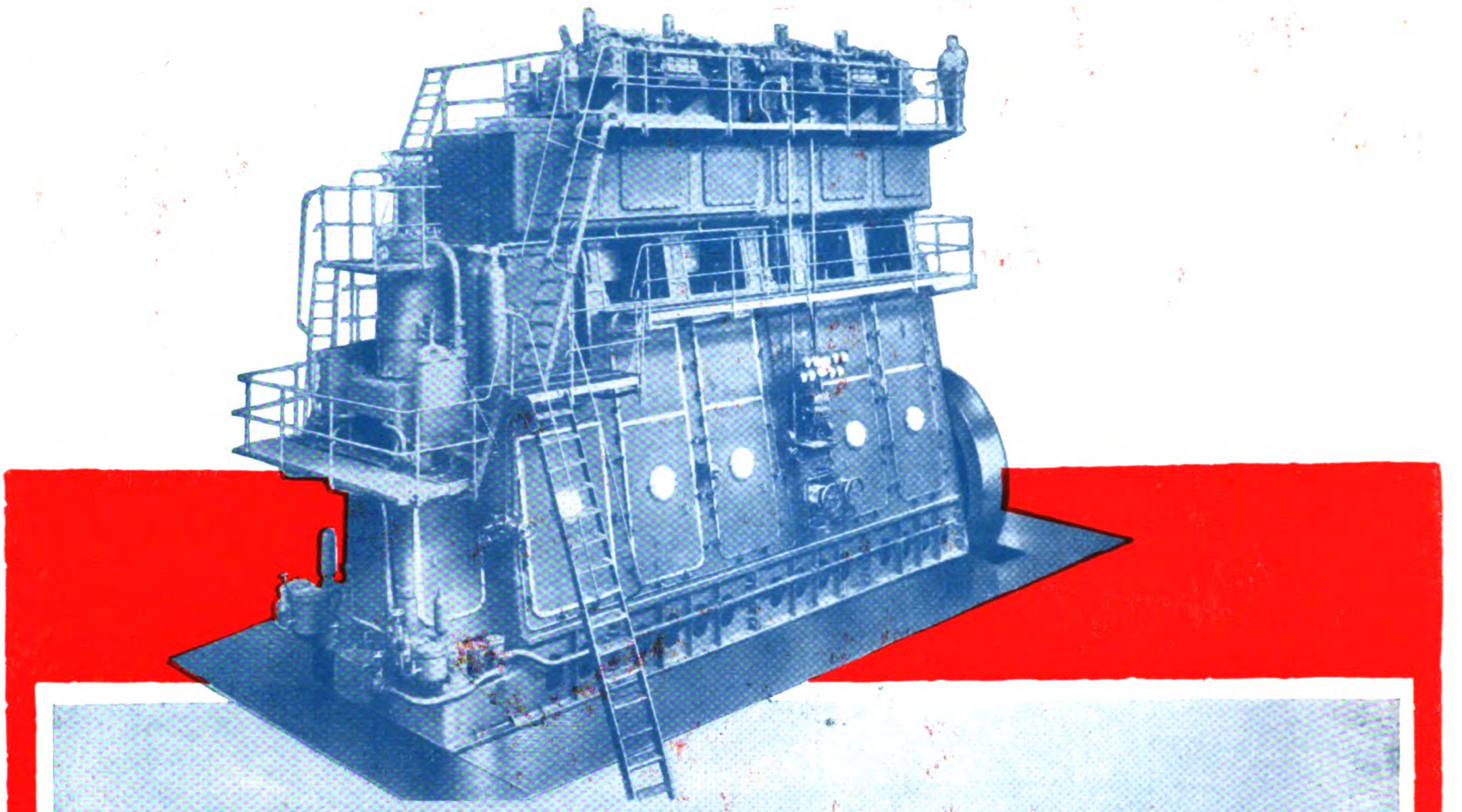
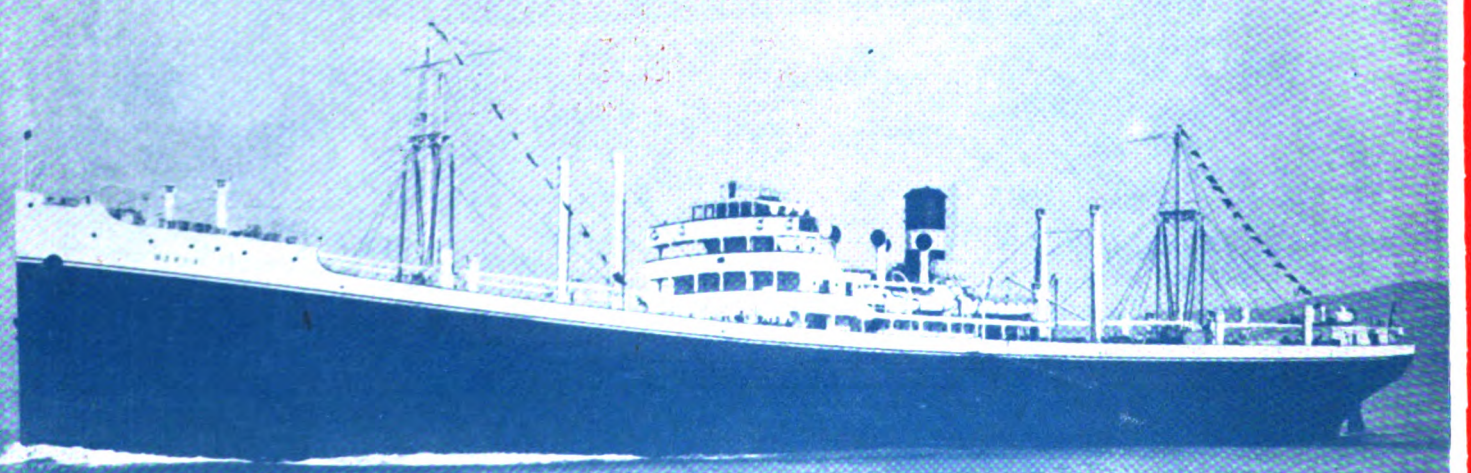


As the American licensee for Fiat Engines, Nordberg offers to users of Marine Engines, of this country, those tried and proved designs that were so well known in Europe. The 8,200 ton dead weight motorship built for the Cosulich Line and powered with a 2200 Horsepower Fiat Engine is but one of the many types now offered by Nordberg.

Nordberg Mfg. Co. Milwaukee, Wis.



NORDBERG

"MOTORSHIP" for May, 1928. Vol. XIII, No. 5. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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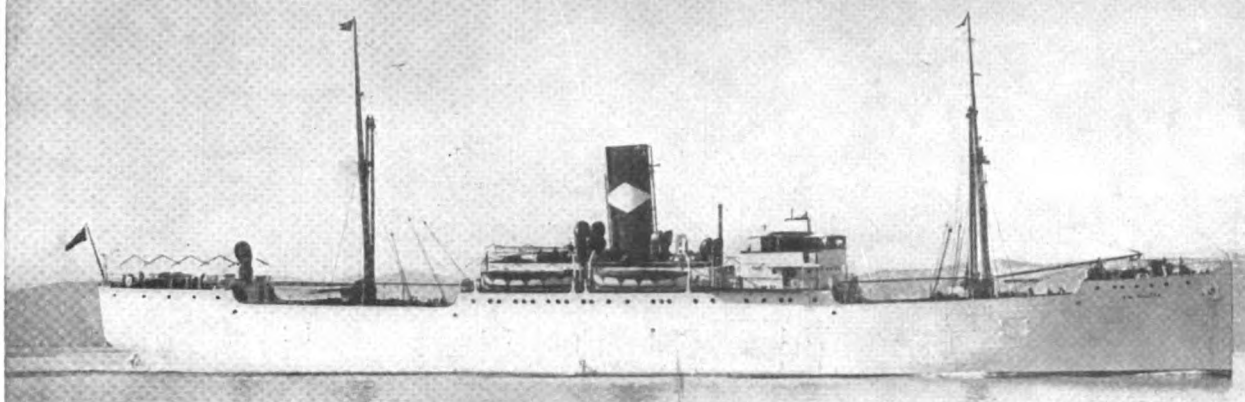
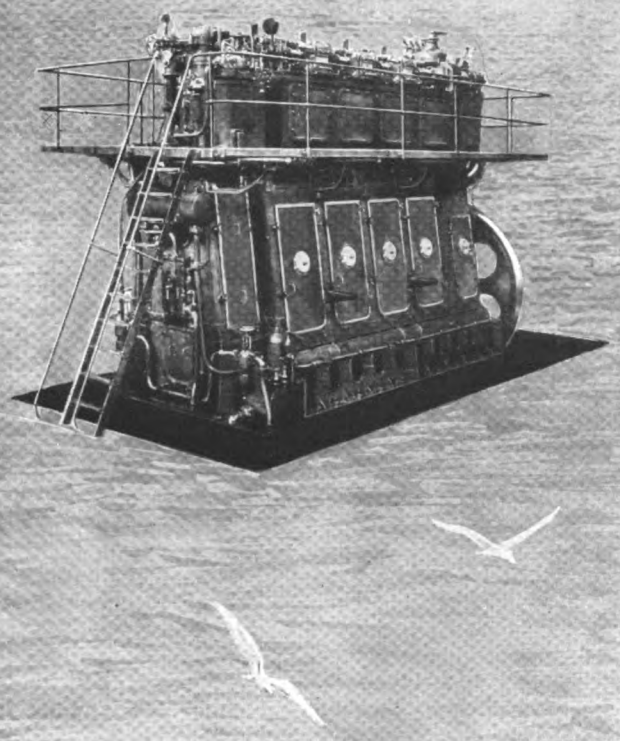
Marine Diesel Engines





Electric Generator Units for Motorships

NORDBERG Diesel generating units whether for Diesel electric drive or for auxiliary service, are available in a number of sizes and types. Twelve auxiliary engines of 340 K. W. capacity are to be furnished in the six ships in the next Shipping Board Dieselization Program. As licensee for Fiat Diesels in America, there is also available other developed and proved designs for main propelling units. Nordberg and Fiat engines are available to those seeking the best in any Marine Diesel equipment. These engines are designed and built in a manner that assures the performance that this important service demands.

Nordberg Mfg. Co. Milwaukee Wis.

NORDBERG

"MOTORSHIP" for June, 1928. Vol. XIII, No. 6. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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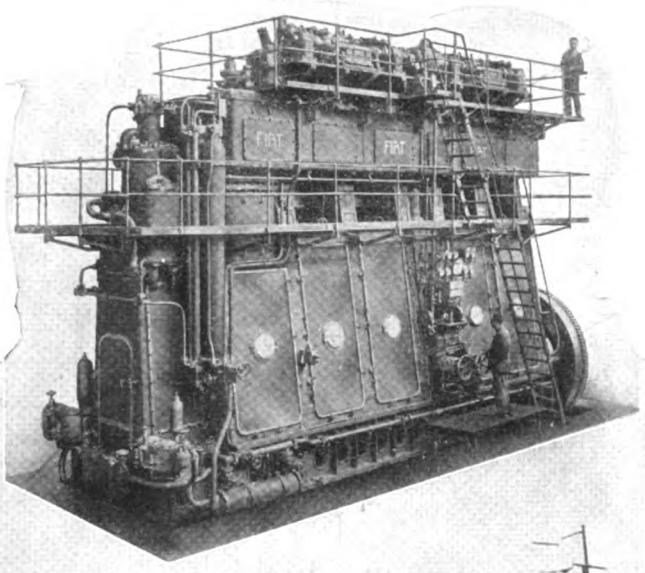
NORDBERG

In Nordberg-Fiat Marine Diesel Engines is a combination of the best in American and European Diesel Engine practice. This combination is now available to American shipping in a variety of sizes and proven types.



Diesel Engines for Marine Service

Nordberg Mfg. Co., Milwaukee

"MOTORSHIP" for July, 1928. Vol. XIII, No. 7. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year domestic; $5.00 foreign.

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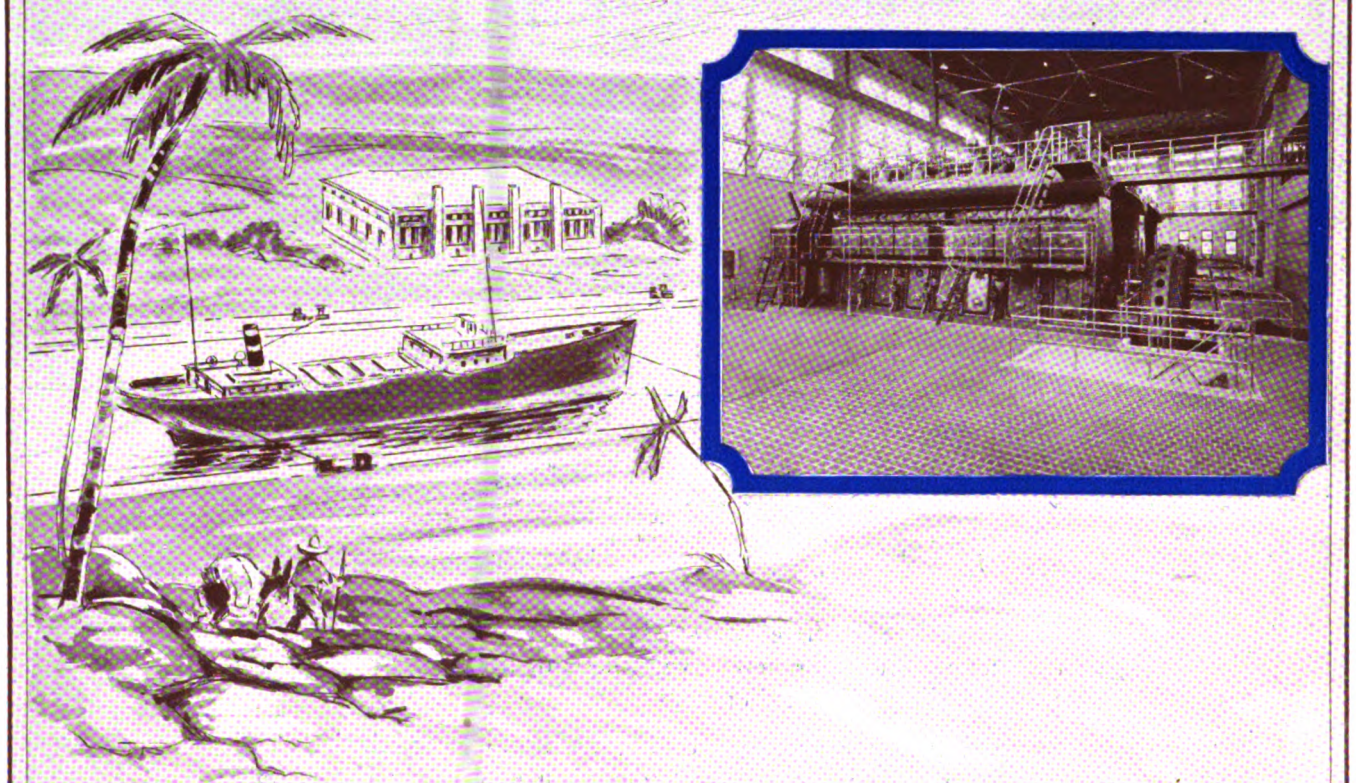
NORDBERG
at PANAMA



One of the points of interest at the Panama Canal is America's largest Diesel-engined power plant. See this modern installation when again passing through the Canal.

Nordberg Diesels have long held the foremost position in the stationary engine field. This experience is now combined with Fiat designs by Nordberg securing of American manufacturing rights of this prominent European line of marine Diesel Engines.

When again considering the purchase of marine Diesel equipment, the merits of these designs are worthy of your careful consideration.

NORDBERG MFG. CO MILWAUKEE

DIESEL ENGINES
for **MARINE SERVICE**

"MOTORSHIP" for August, 1928. Vol. XIII. No. 8. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscriptions, $4.00 per year, domestic; $5.00 foreign.

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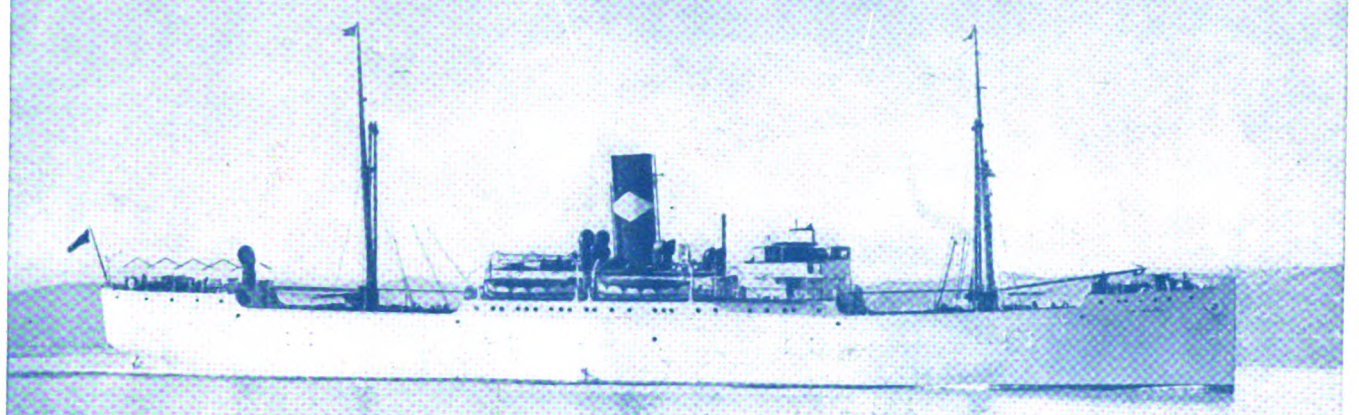
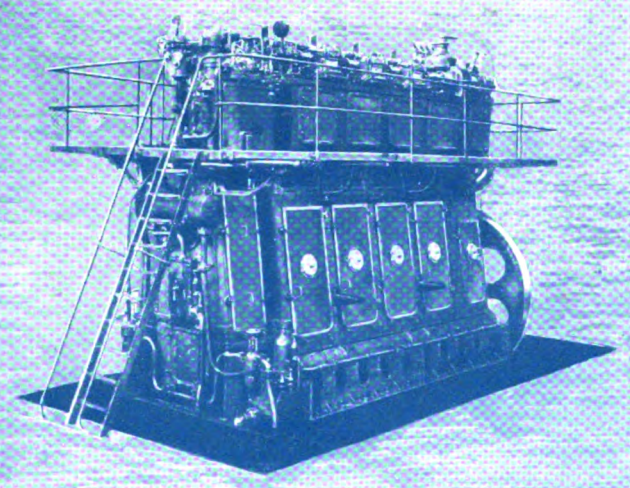
Marine Diesel Engines





Nordberg Diesel Engines for Auxiliary Service

THERE are now being built in the Nordberg plant, twelve auxiliary Diesel Engines for Shipping Board boats. Six of these will drive 340 K.W. Generators, the other six in addition to driving a generator of this size will also be direct connected to 550 cubic foot three-stage compressors. Other Nordberg-Fiat designs are available for Diesel-electric, auxiliary or direct drive.

Nordberg Mfg. Co. Milwaukee Wis.

NORDBERG

"MOTORSHIP" for September, 1928. Vol. XIII, No. 9. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscriptions, $4.00 per year, domestic; $5.00 foreign.

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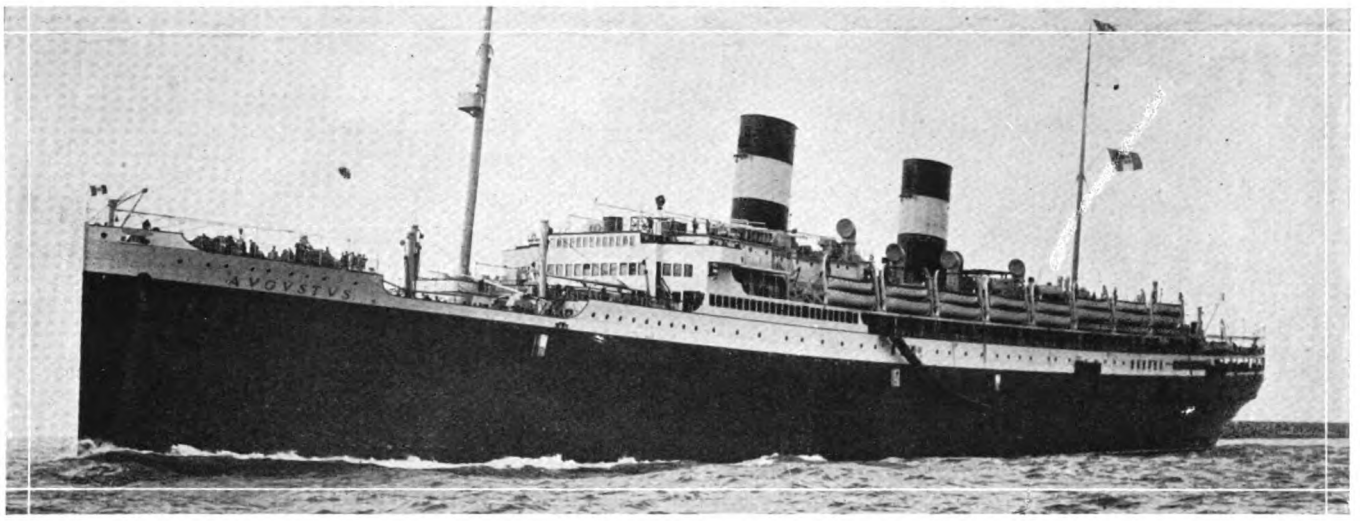
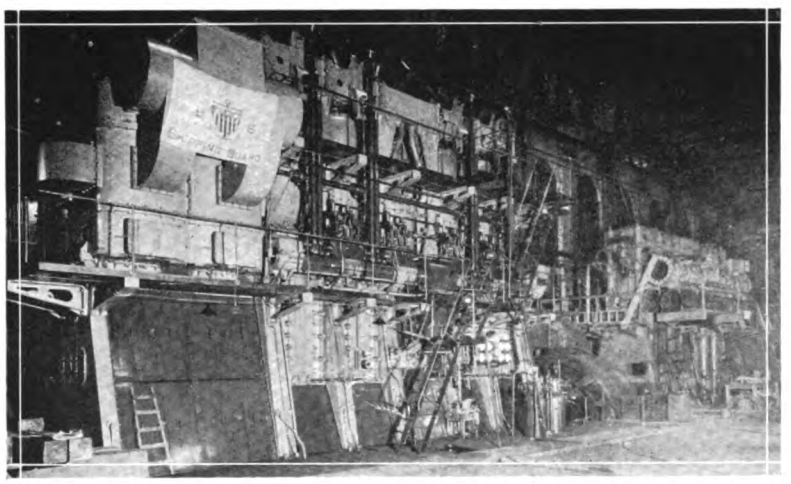
LEADERSHIP



MS. AUGUSTUS—LARGEST MOTORSHIP IN THE WORLD

28,000 B.H.P. Main Engines—M.A.N. Double-Acting, Two-Cycle Diesels



THE SEMINOLE'S ENGINE

The U. S. Shipping Board Freighter Seminole is propelled by a Hamilton M. A. N. Diesel Engine of the same size and power per cylinder as the M.A.N. Diesels of the Augustus

The Hooven, Owens, Rentschler Co.

Hamilton Engines and Machinery

HAMILTON, OHIO

HAMILTON M.A.N. Diesel

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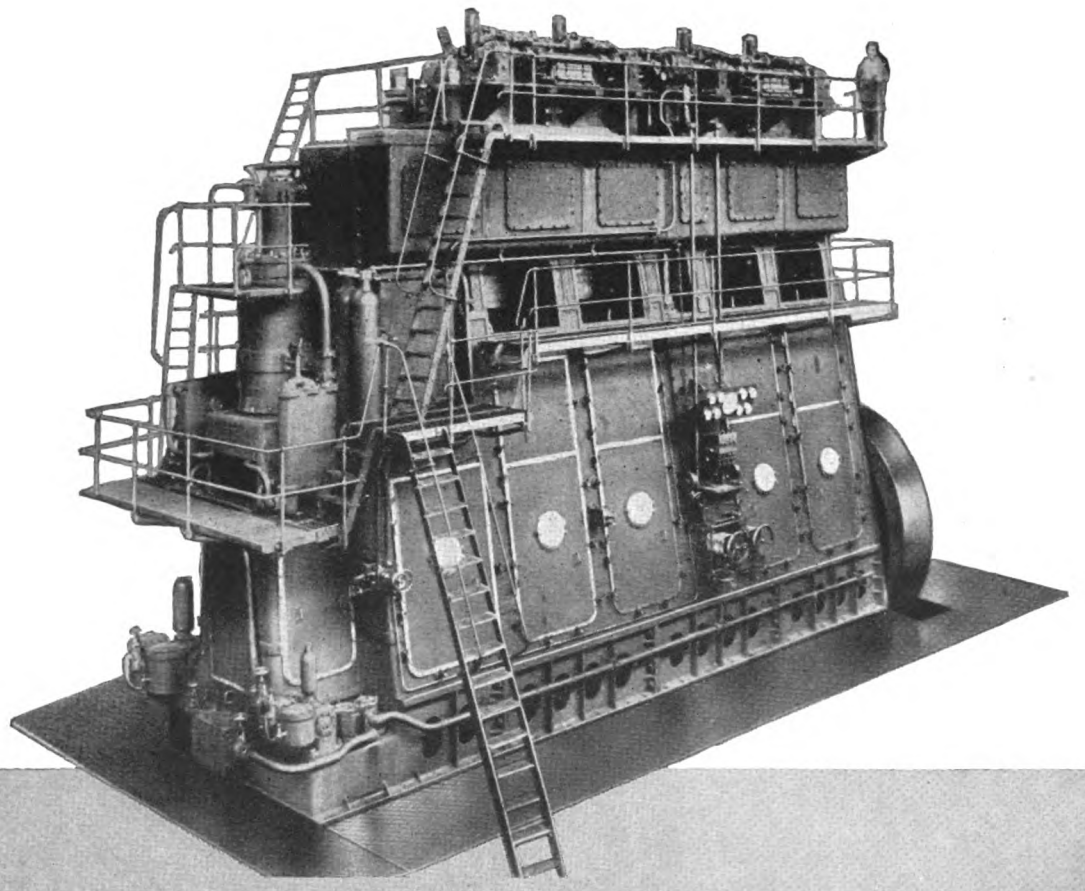
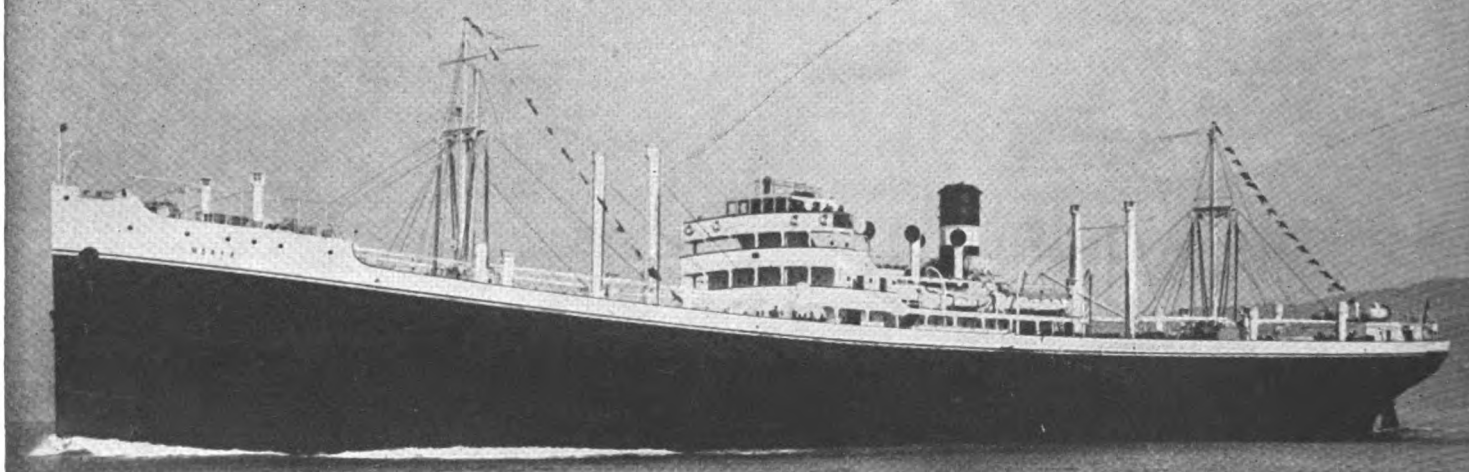


DIESEL designs of Fiat that have proved so popular among European ship owners can now be secured through Nordberg. Whether it is a 2200 HP engine for direct drive like the one shown above or smaller units for Diesel electric or auxiliary service, Nordberg-Fiat engines in various sizes and types are available to those seeking quality in marine Diesels.

Nordberg Mfg. Co. Milwaukee, Wis.



NORDBERG

"MOTORSHIP" for October, 1928. Vol. XIII. No. 10. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscriptions, $4.00 per year, domestic; $5.00 foreign.

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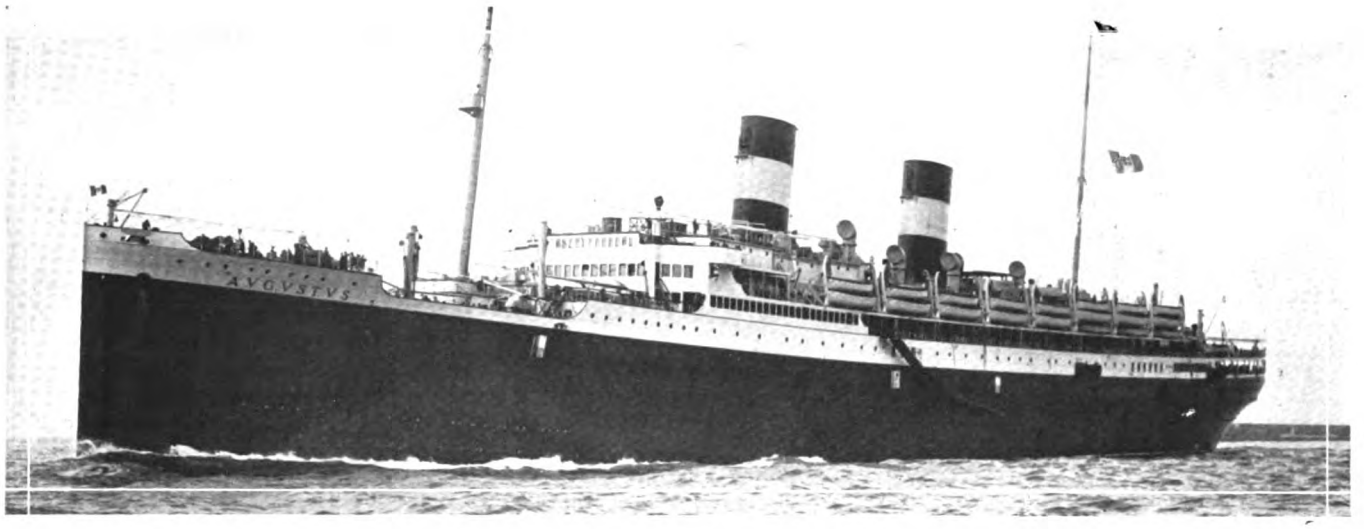
LEADERSHIP



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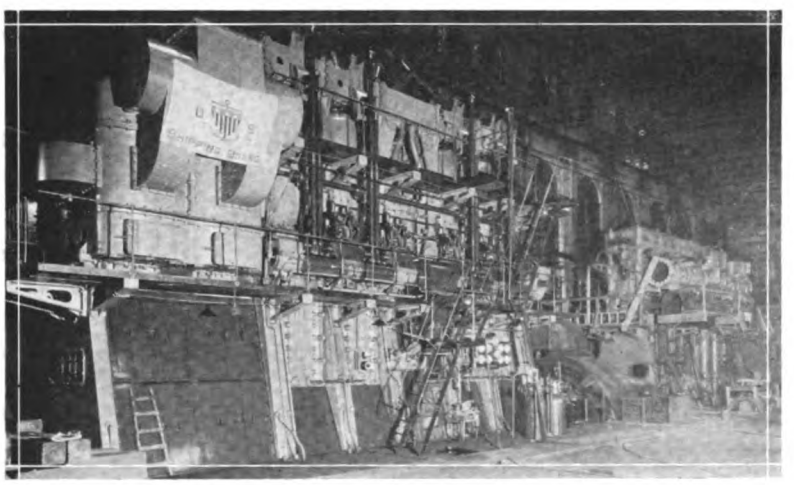

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The Hooven, Owens, Rentschler Co.

Hamilton Engines and Machinery

HAMILTON, OHIO

HAMILTON M.A.N. Diesel

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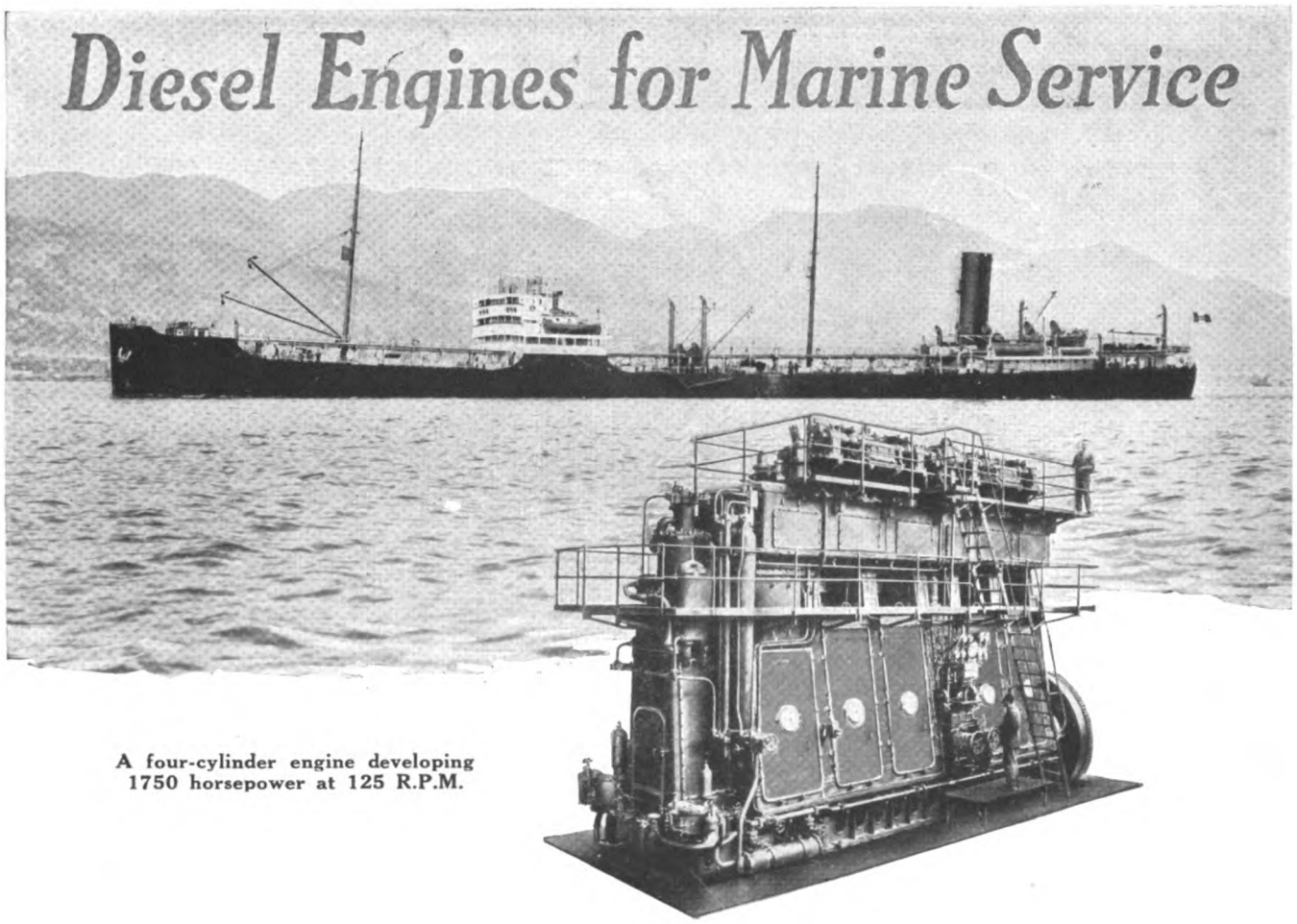
Diesel Engines for Marine Service



A four-cylinder engine developing
1750 horsepower at 125 R.P.M.

Nordberg Facilities

Users of mechanical equipment, and particularly of Diesel Engines, because of the importance of the service, are intensely interested in the facilities back of such equipment. The modern Nordberg plant offers unexcelled manufacturing facilities. There are in operation today more than 100,000 horsepower in Nordberg Diesel Engines.

Combined with the experience gained in manufacturing these Diesels is that of Fiat, long a prominent European builder of Marine Diesels, the American License of which is held by Nordberg. With such a combination, it is possible to secure designs of proven merit and built by a Company that has won a reputation for the high quality of its product.

Whether it is an engine for direct propulsion, Diesel Electric or auxiliary service, there is a type that will fit in with your requirements and give the kind of service that is expected from better designed and built equipment.

When seeking the best in Diesel Engine Performance, investigate what Nordberg has to offer

Nordberg Mfg. Co., Milwaukee, Wis.

NORDBERG

"MOTORSHIP" for November, 1928. Vol. XIII. No. 11. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscriptions, $4.00 per year, domestic; $5.00 foreign.

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SIGNIFICANT

120,000 HORSE POWER

In Service and Under Construction

of

M. A. N. DOUBLE ACTING

TWO-CYCLE MARINE DIESEL ENGINES

With Cylinder Size $27\frac{1}{2}$" Bore by $47\frac{1}{4}$" Stroke

11,900 HORSE POWER

BUILT BY

THE HOOVEN, OWENS, RENTSCHLER CO.
Hamilton Engines and Machinery
HAMILTON, OHIO

HAMILTON
M.A.N. Diesel

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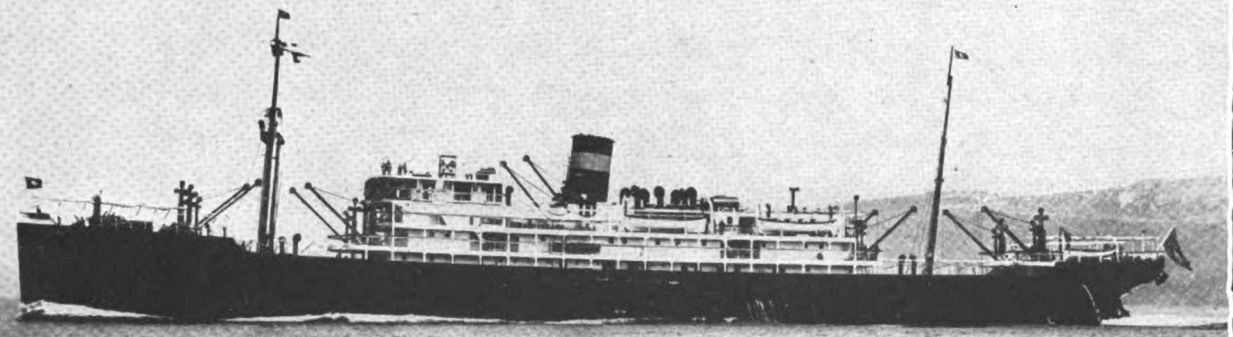

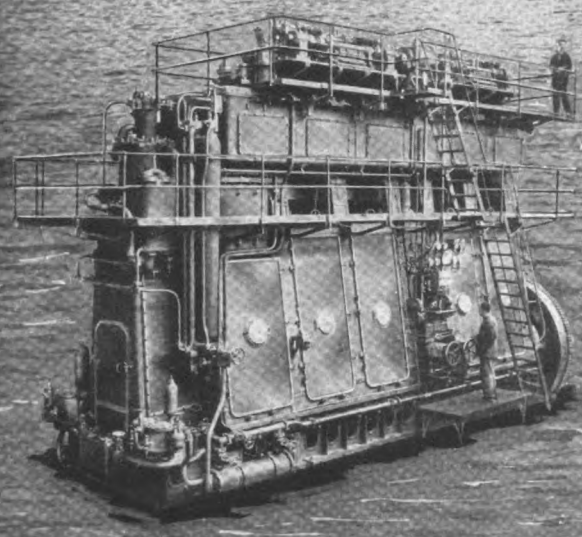

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Nordberg Mfg. Co.

Milwaukee, Wis.

NORDBERG-FIAT
MARINE DIESEL ENGINES

"MOTORSHIP" for December, 1928. Vol. XIII, No. 12. A monthly journal published by National Trade Journals, Inc., at 101 West 31st Street, New York, N. Y. Entered as second class matter July 16, 1918, at the Post Office, New York, under the Act of March 3, 1879. Subscription, $4.00 per year, domestic; $5.00 foreign.

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SIGNIFICANT

120,000 HORSE POWER

In Service and Under Construction

of

M.A.N. DOUBLE ACTING

TWO-CYCLE MARINE DIESEL ENGINES

With Cylinder Size 27½" Bore by 47¼" Stroke

11,900 HORSE POWER

BUILT BY

THE HOOVEN, OWENS, RENTSCHLER CO.
Hamilton Engines and Machinery
HAMILTON, OHIO

HAMILTON
M.A.N. Diesel

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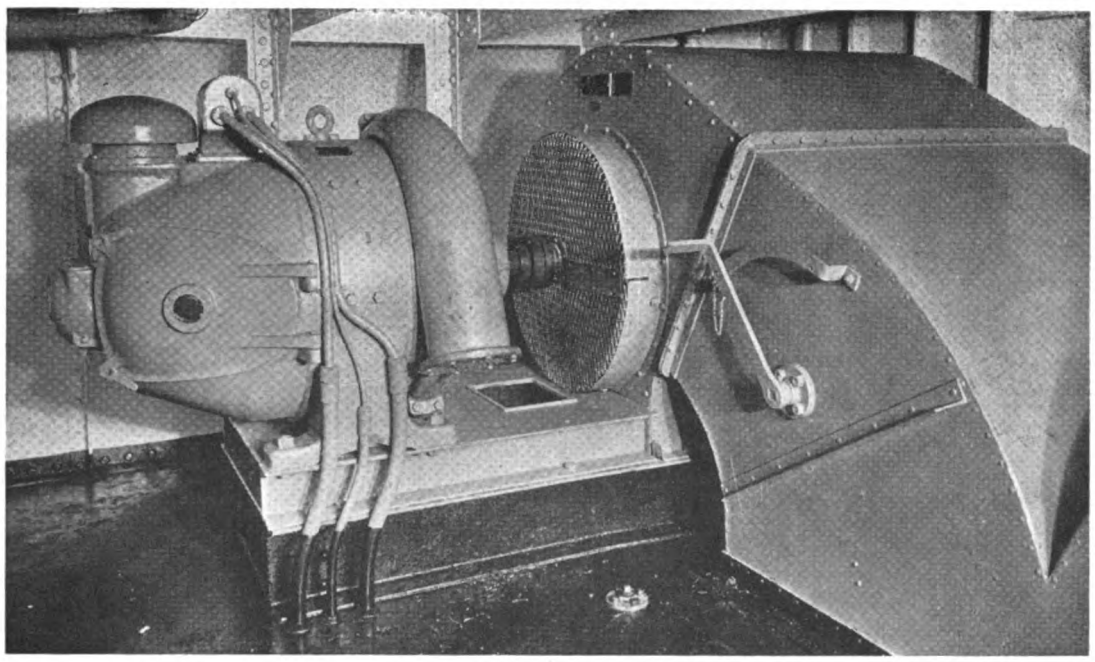


Above is shown one of two Sturtevant Ventilating Fans used for main generator and motor cooling on the M. S. Courageous now being fitted out by Federal S. B. & D. D. Co., for the Shipping Board.

Motorship COURAGEOUS Sturtevant Equipped

(REG. U. S. PAT. OFF.)

The world's largest electric freighter—Motorship Courageous—soon will be ready for her trial trip. This is the first of three large freighters now being reconditioned for the Shipping Board, and will be equipped with Diesel electric drive.

Included in her equipment are Sturtevant Ventilating Fans used for general ventilating purposes, and also for cooling the generators and propulsion motors.

Sturtevant Marine Equipment is found on all classes of ships. Freighters, passenger liners, battleships, cruisers, destroyers, ferry boats, and yachts all get the same dependable service from Sturtevant Equipment because it is built to give unfailing performance which is so essential in meeting Marine requirements.

B. F. STURTEVANT COMPANY

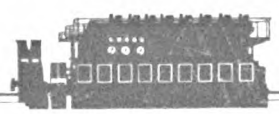
Plants and Offices at: Berkeley, Cal.—Camden, N. J.—Framingham, Mass.—Galt, Ontario—Hyde Park, Mass.—Sturtevant, Wis.

Branch Offices at: Atlanta; Birmingham; Boston; Buffalo; Camden; Charlotte; Chicago; Cincinnati; Cleveland; Dallas; Denver; Detroit; Hartford; Indianapolis; Kansas City; Los Angeles; Milwaukee; Minneapolis; New York; Pittsburgh; Portland; Rochester; St. Louis; San Francisco; Seattle; Washington, D. C. *Canadian Offices at:* Toronto, Montreal and Galt.

Also Agents in Principal Foreign Countries.

Sturtevant (REG·U·S·PAT·OFF·) *Marine Equipment*

Heating and Ventilating Equipment— **Mechanical Draft Equipment—Turbines—Motors—Blowers** **Ventilating Sets—Heaters—Generating Sets—Exhausters—** **Gasoline and Steam Engines**



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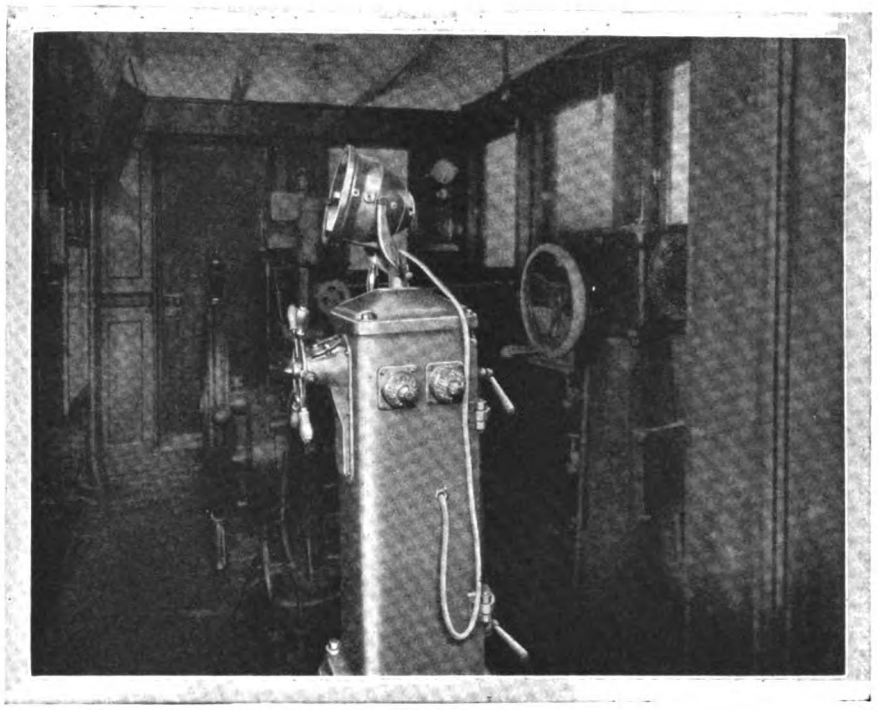


Wheelhouse of the M/S COURAGEOUS showing the Sperry Gyro-Pilot in the foreground. This Gyro-Pilot provides manual-electric steering, automatic steering or free use of the hydraulic telemotor whenever desired. Three independent means of steering are therefore available on the bridge of the COURAGEOUS.

A degree in time saves *nine*

NEVER was the old adage, "A stitch in time saves nine," any better exemplified than by the Sperry Gyro-Pilot in its ability to steer a ship with such little use of rudder. To check a yaw at its beginning requires only a degree or two of rudder; allow the same yaw to get headway and ten or more degrees of rudder are required to check it.

Big rudder angles are costly for they retard the ship's progress through the water and require greater power from the steering machinery.

The Sperry Gyro-Pilot therefore brings about economies in propulsion and auxiliary power. It also does the work of three or more men, thereby reducing the number of necessary men in the crew or releasing that number of men for other work.

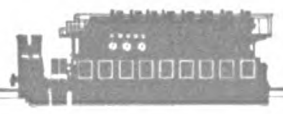
The earning power of every ship, new or old, can be increased by the installation of the Sperry Gyro-Pilot.

THE SPERRY GYROSCOPE COMPANY

BROOKLYN
CLEVELAND PHILADELPHIA SEATTLE

SPERRY

NEW YORK
LOS ANGELES SAN FRANCISCO



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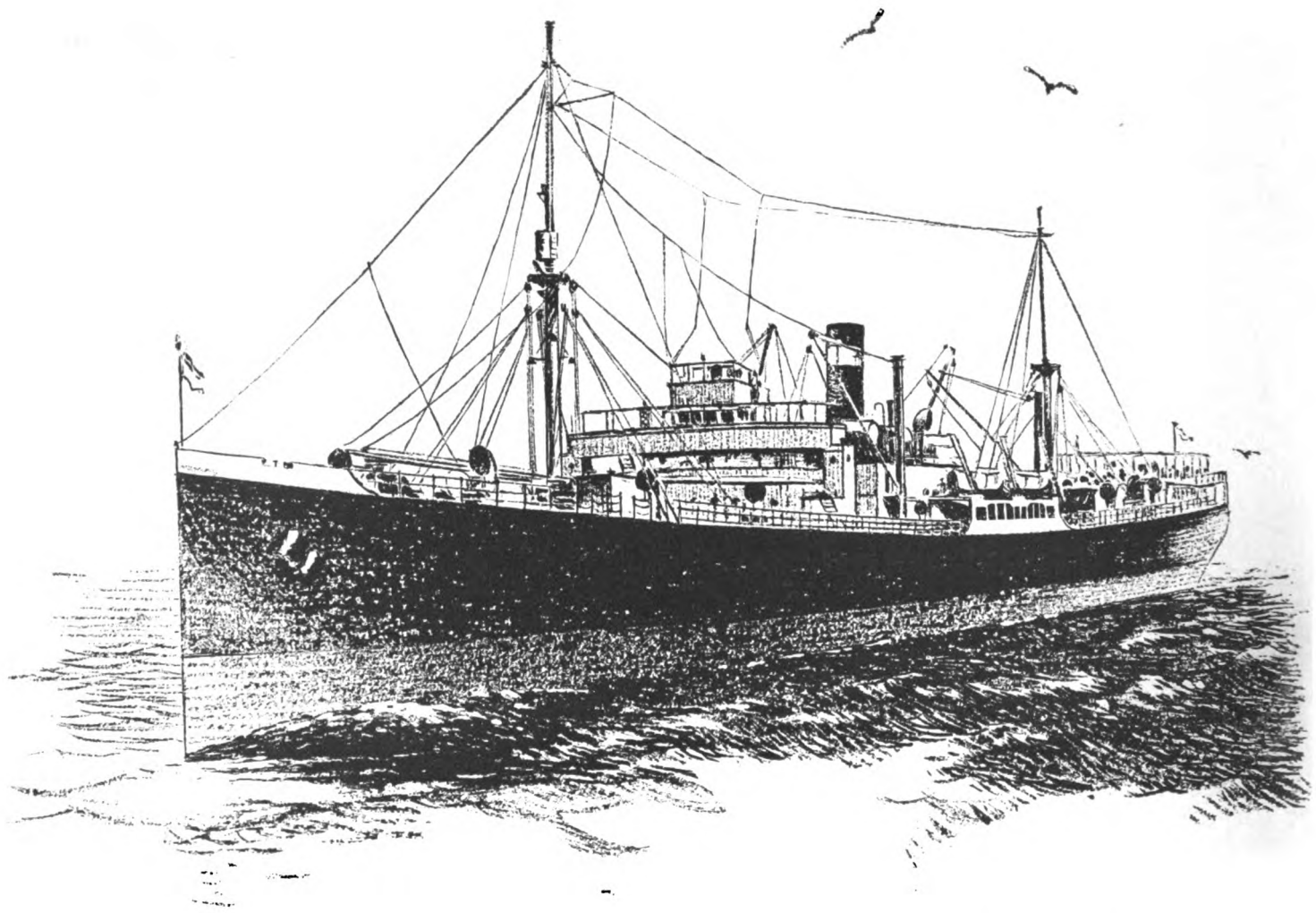
Another Advance in Marine Development



GENERAL

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

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LESS than a decade ago, Diesel-electric drive was but an experiment. To-day, Diesel-electric ships are establishing notable records on river, lake, and ocean. In tugboats, tankers, ferries, dredges, coast-guard cutters, as well as many other vessels, the advantages of this type of drive have been abundantly proved.

The ***Courageous*** marks an important advance in this development. It is the largest vessel on which Diesel-electric drive has yet been installed, with greater s.hp. capacity than any other Diesel-electric vessel now afloat.

To each of the four McIntosh and Seymour Diesel engines are connected an 800-kw. main generator and a 100-kw. auxiliary generator.

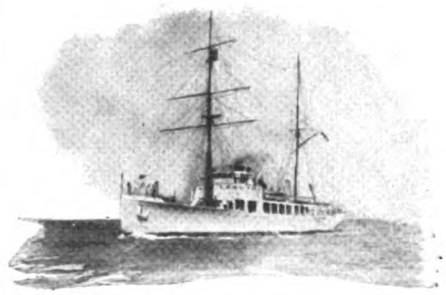
These furnish power for the two 2000-s.hp. main propulsion motors and for the operation of the ship auxiliaries.

General Electric designed and furnished both the main propulsion generators and motors as well as the switchboards and electric equipment for deck and under-deck auxiliaries.

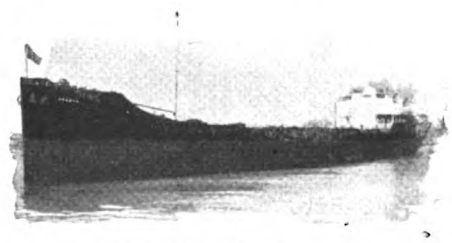
Ferry Golden Gate placed in service in 1922

Tugboat Van Dyke No. 3 placed in service in 1924

Dredge Sandmaster placed in service in 1926



Coast-guard cutter Northland placed in service in 1927



Tanker Sharon placed in service in 1927

ELECTRIC

123-17

SALES OFFICES IN PRINCIPAL CITIES

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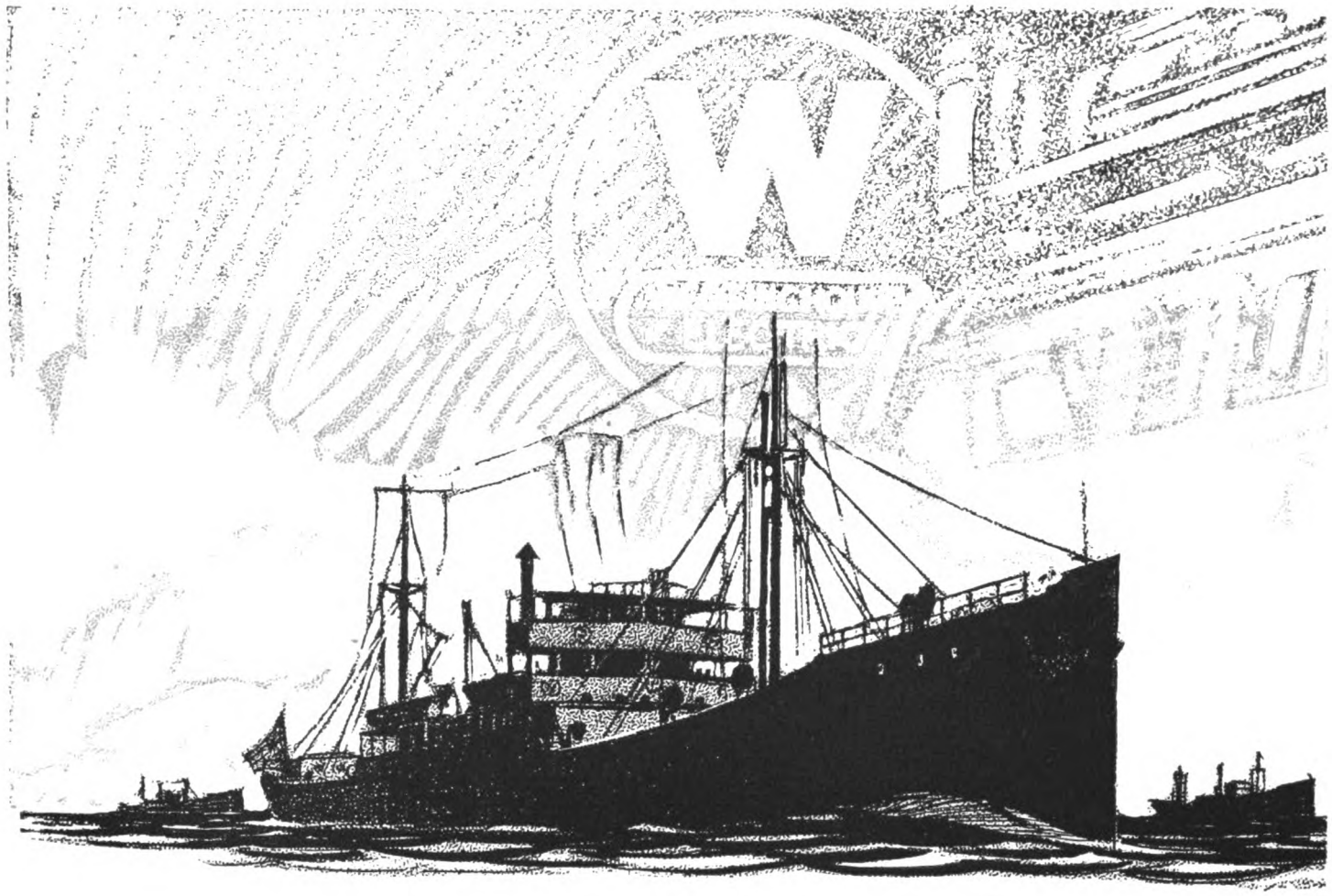
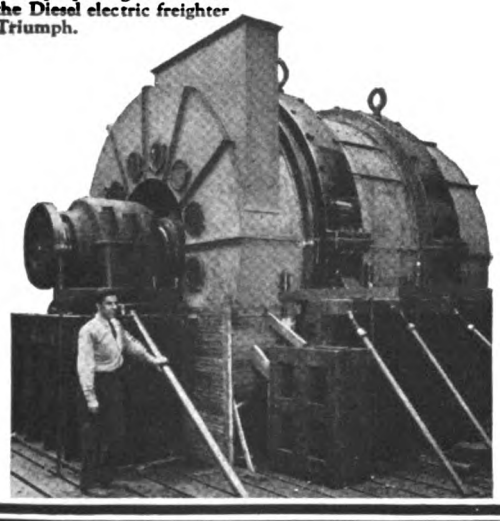


SHOWING



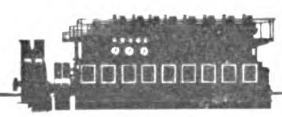
The 4000 shp. double armature propelling motor of the Diesel electric freighter Triumph.

THE two converted Shipping Board Diesel electric freighters, Defiance and Triumph, which will soon go into service, are showing all shipowners the way to the most modern type of propulsion for cargo carrying vessels.

Combining the economy of the Diesel engine with the reliability of multiple generating units, and the flexibility of machinery arrangement and power distribution, Diesel electric propulsion

Westinghouse DIESEL

T 30161



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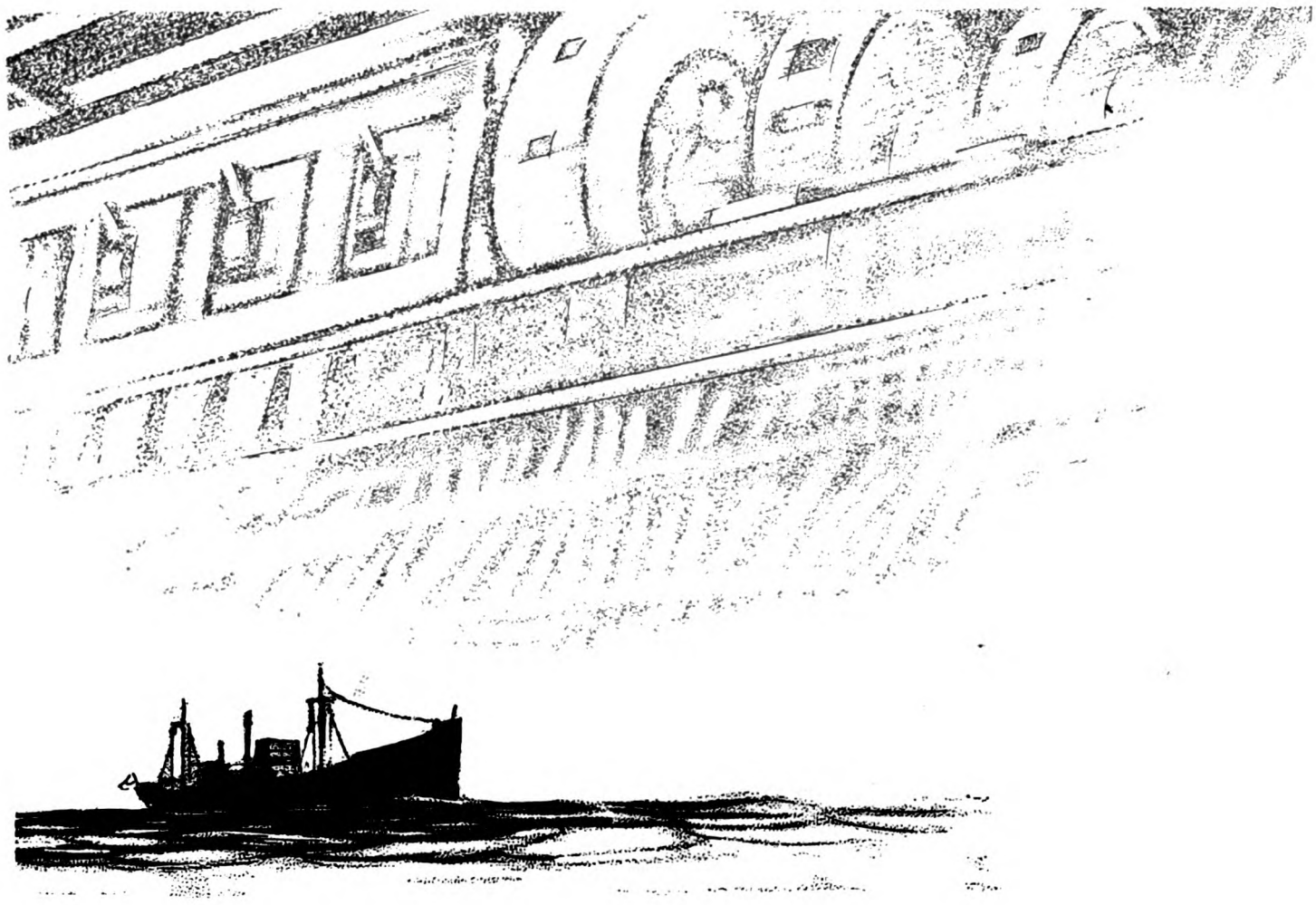

THE WAY

constitutes an ideal drive for this class of ships.

The complete electrical equipment for the propulsion machinery, as well as the motors and control of the electrically-driven deck and under deck auxiliaries of these two vessels, the Triumph and Defiance, was supplied by Westinghouse.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal American Cities
Service Stations in Principal American Ports

ELECTRIC DRIVE

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S.S. { Courageous
Triumph - - Defiance
modernized with McIntosh

NOW

AS steamers these 10-knot vessels were uneconomical, useless and obsolete, although very soundly built.

As virtually new and modern 13 to 14-knot motorships with Diesel-electric drive, low fuel consumption, reduced operating charges, dependable power and 600,000 cu. ft. of cargo space each, they will be able to compete profitably even on the much traveled routes of the fastest and largest freighters.

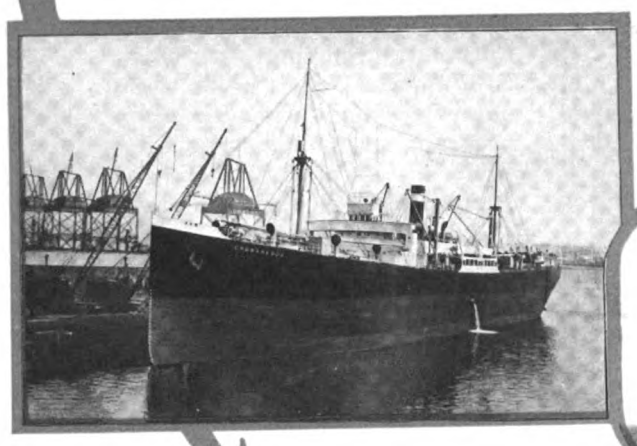
The success of their McIntosh & Seymour Diesel power is assured by the performance records of many other marine installations in cargo, passenger, towing and dredging services.

The McIntosh & Seymour line includes a wide range of main and auxiliary units and sizes, and McIntosh & Seymour Engineers are eminently qualified to assist in adapting hull and machinery designs to each other in conversions and new construction.

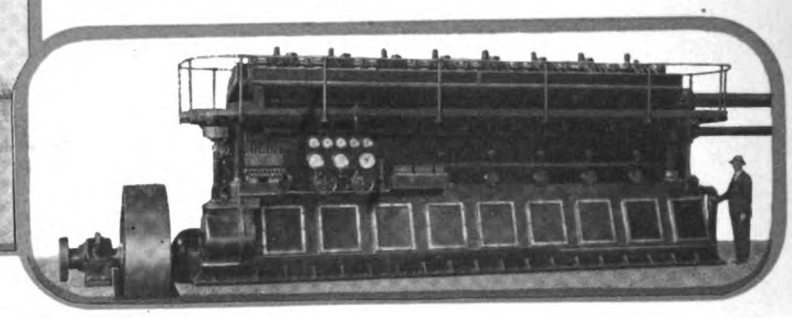
Write for our latest Marine Bulletin

McIntosh & Seymour Corporation, Auburn, N. Y.

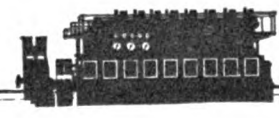
New York City, 149 Broadway — Kansas City, Mo., 1016 Baltimore Ave. — Jacksonville, Fla., 412 Bisbee Bldg. — Houston, Tex., 2703 Esperson Bldg. — San Francisco, Cal., 514 Matson Bldg.



At left, Motorship Courageous ready for sea trials, and below, one of her four McIntosh & Seymour Main Engines. Similar groups of four McIntosh & Seymour Engines are to be installed in the Triumph and the Defiance.



McINTOSH MOTOR



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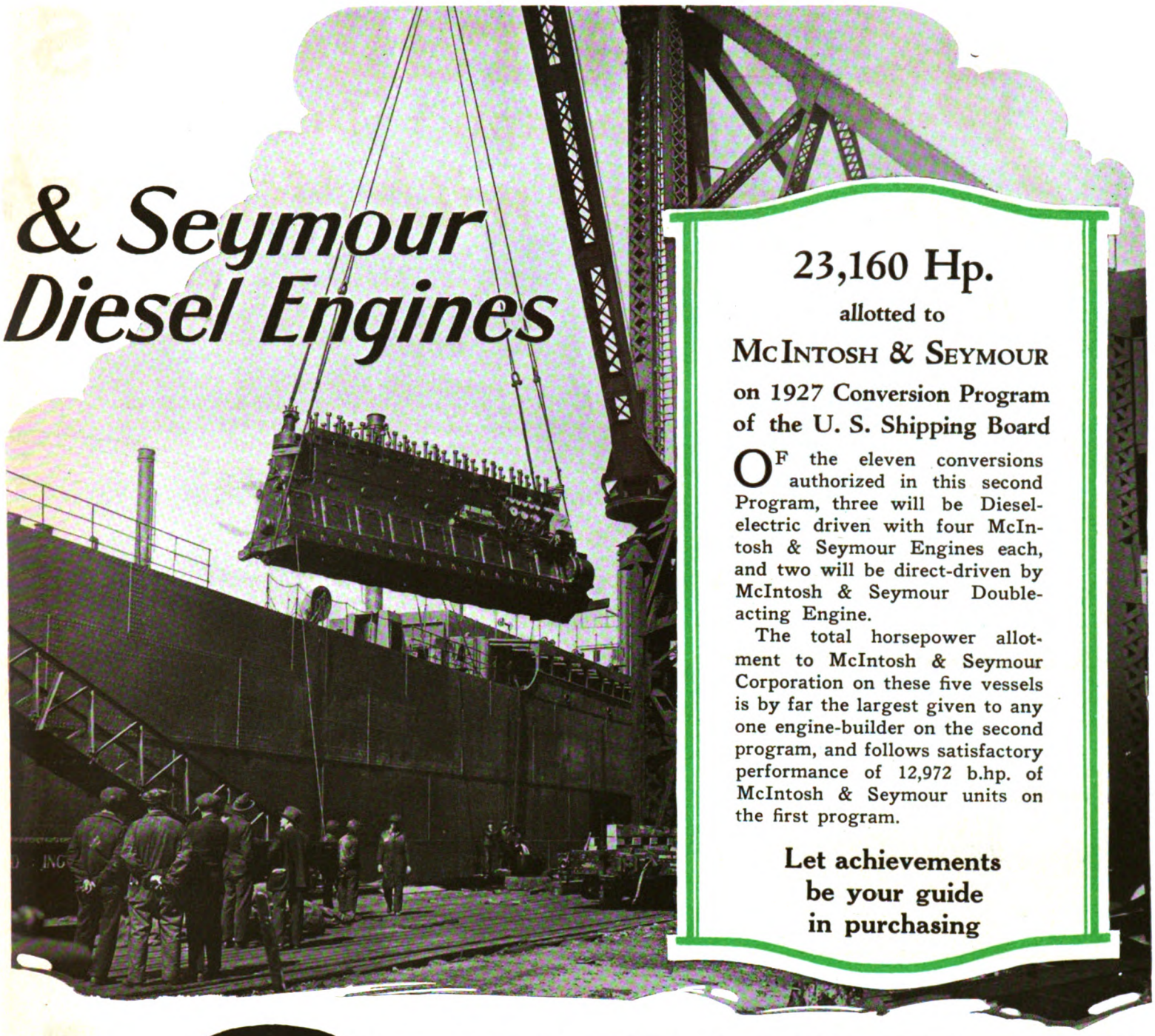

& Seymour Diesel Engines

23,160 Hp.

allotted to

McINTOSH & SEYMOUR

on 1927 Conversion Program of the U. S. Shipping Board

OF the eleven conversions authorized in this second Program, three will be Diesel-electric driven with four McIntosh & Seymour Engines each, and two will be direct-driven by McIntosh & Seymour Double-acting Engine.

The total horsepower allotment to McIntosh & Seymour Corporation on these five vessels is by far the largest given to any one engine-builder on the second program, and follows satisfactory performance of 12,972 b.hp. of McIntosh & Seymour units on the first program.

Let achievements be your guide in purchasing

& SEYMOUR SHIPS

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Two of the three former U. S. Shipping Board Steamers, now being converted to Diesel-electric drive,—the "DEFIANCE" and "TRIUMPH," sister ships of the "COURAGEOUS"—are being equipped with Sharples Oil Purifiers. Each ship will have one open type Sharples for "lube" oil, and two "Presurtites" (fume proof) for fuel oil.

Sharples Oil Purifiers now provide "Clean Oil Protection" for the world's finest ships. Sharples purified oil is the best insurance against burnt-out bearings, injection valve trouble, misfiring, and shutdowns.

THE SHARPLES SPECIALTY COMPANY, 2336 WESTMORELAND STREET, PHILADELPHIA. Boston, New York, Pittsburgh, Chicago, Detroit, Tulsa, New Orleans, San Francisco, Los Angeles, Toronto, London, Paris, Tokio.

SHARPLES
A GREAT FORCE

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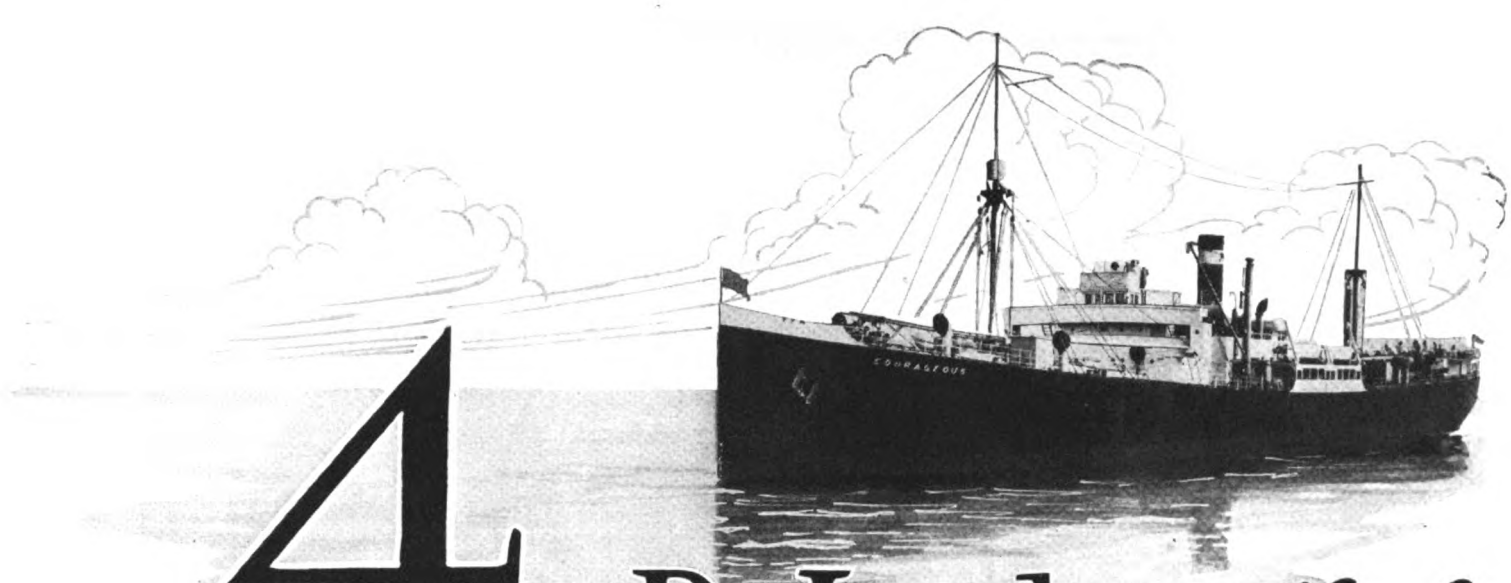
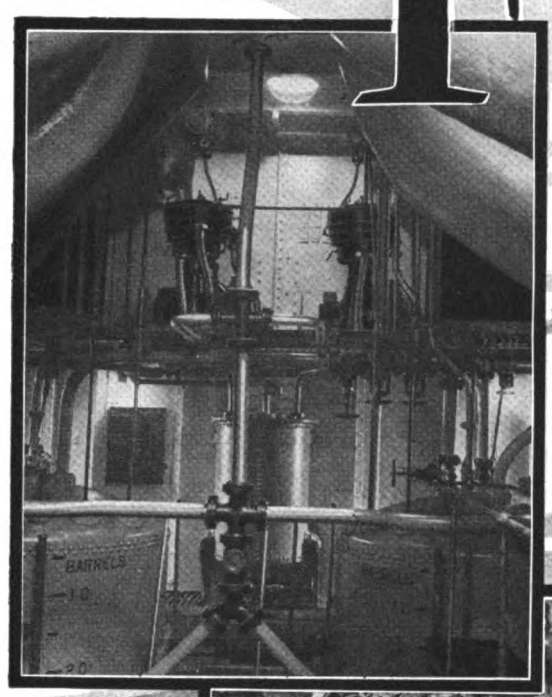
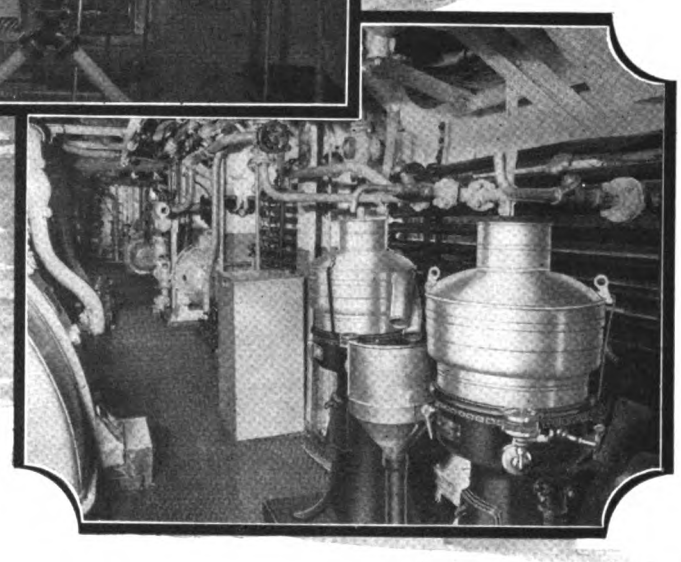


4 De Lavals *purify fuel and lubricating oil* ~ ~ ~ *on* Ms. Courageous





CLEAN lubricating oil lessens bearing wear . . . . clean fuel oil protects valves, pistons and cylinder liners . . . . . the combination greatly lowers the cost of operating a Diesel engine.

Four De Laval Purifiers on the Ms. *Courageous* make clean-oil protection absolute. Two of these machines continuously remove impurities from the oil in the lubricating and cooling systems of the four McIntosh & Seymour engines. Two others of vapor-tight construction insure that water and abrasives are not injected into the engines with the fuel.

Thus the U. S. Shipping Board has insured its investment in the world's largest Diesel-electric cargo ship.

Bulletin No. 106-M tells how you can similarly safeguard your own investment.

THE DE LAVAL SEPARATOR CO.
165 Broadway, New York 600 Jackson Blvd., Chicago
DE LAVAL PACIFIC COMPANY, 61 Beale St., San Francisco
ALFA-LAVAL CO., Ltd., 34 Grosvenor Road, London, S. W. 1.

DE LAVAL OIL PURIFIERS

Types for Lubricating Oil and Fuel Oil

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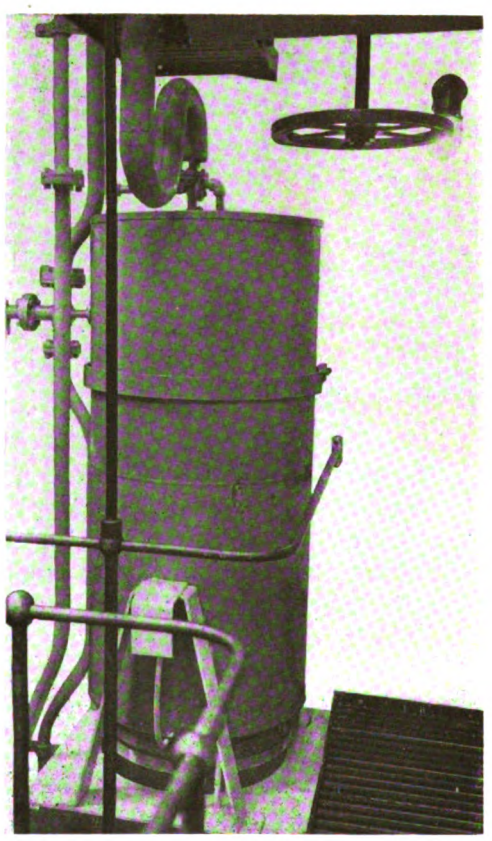
Sepco Electric Heating Equipment

On the First 12 Shipping Board Conversions



The 100 gal. Sepco unit as installed on the Ms. Courageous

S

EPCO electric storage-type water heaters were installed, together with other equipment, on the first twelve ships to be converted by the U. S. Shipping Board to Diesel power. As evidence of their satisfactory operation Sepco electric storage-type water heaters have been installed on the Shipping Board Diesel electric conversions, COURAGEOUS, TRIUMPH and DEFIANCE.

—Sepco heating units operate "dry" or "wet" with equal satisfaction.

—Every Sepco product is designed especially for individual requirements.

IF YOU HAVE A PROBLEM OF ELECTRIC HEATING with automatic temperature control, let Sepco engineers make a careful study of your particular conditions. Special attention given to marine applications.

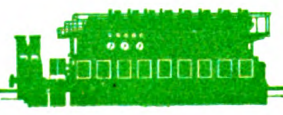
TELL US YOUR PROBLEM and we will gladly send an engineer experienced in marine applications to talk with you.

AUTOMATIC ELECTRIC HEATER CO.

1505 Race Street **Philadelphia, Pa.**

FACTORIES:—Pottstown, Pa. and Toronto, Canada

And on the Courageous, Triumph & Defiance



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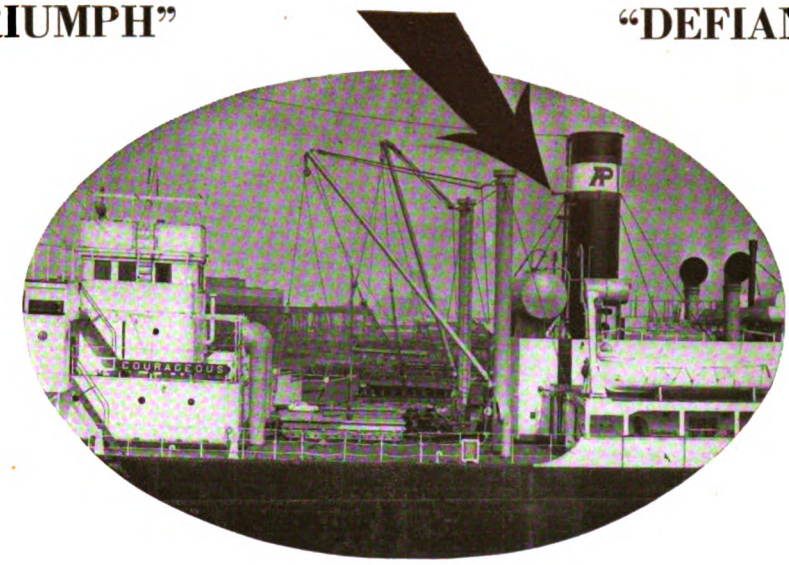
Electrically Operated

TYFON

SIGNALS ON THE

"COURAGEOUS"

"TRIUMPH" "DEFIANCE"



THE three Shipping Board Diesel-Electric Conversions are equipped with TYFON, electrically operated signals, fitted with automatic control for operation in fog. TYFONS in 21 sizes and types for air or steam, mechanically or electrically operated, can be supplied for all types of marine service. TYFONS are used by the U. S. Government, by all important Foreign Governments and by the World's leading Motorship and Steamship operators.

NILS F. NORD
74 Trinity Place, New York

For Philadelphia District:
SMITH MEEKER ENG. CO.
The Bourse, Philadelphia, Pa.

For West Coast
J. E. DORRY
1722 Eighth Ave. San Francisco, Cal.

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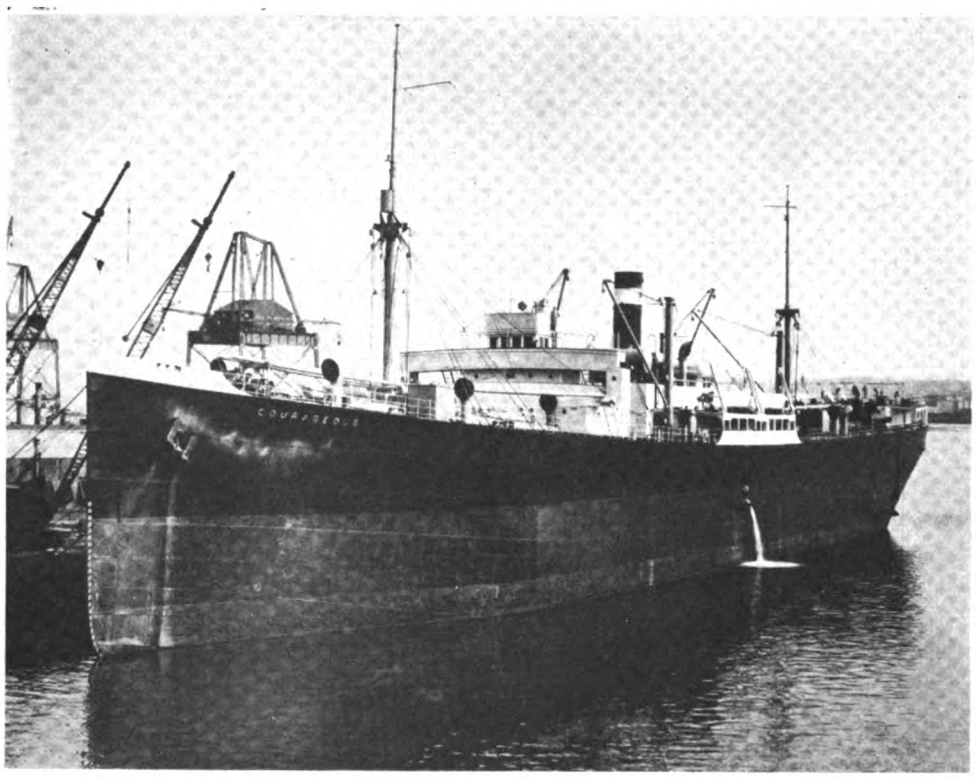

U. S. Shipping Board converted Motor Ship "Courageous." Equipped with four 8-cylinder McIntosh and Seymour 4 cycle, single acting Diesel Engines, of 1200 H. P. each. These engines are directly connected with 4 generators which will supply current to a 4,000 H. P. General Electric Company Electric Drive Motor.

TEXACO URSA OIL

will lubricate the Diesel Engines and the Electric Drive Equipment

OF THE

M. S. COURAGEOUS

The M. S. Courageous is the first Diesel-Electric Drive Vessel to be built for the U. S. Shipping Board—and the world's largest.

This vessel, since its conversion by the Federal Shipbuilding Co., can maintain a speed of over 13 knots—or 3 knots faster than called for under her original design.

In developing and maintaining this greater speed, TEXACO URSA OIL will give a good account of itself.

In fact, TEXACO URSA OIL will give a good account of itself on *any* type or make of Diesel Engine.

Whatever your marine lubrication requirements, call on The Texas Company *First!* We'll supply the lubricant that will put you first:

1—In performance

2—In protection

3—In economy of operation

Stocks Kept at Ports Throughout the World

THE TEXAS COMPANY

Texaco Petroleum Products

MARINE SALES DIVISION

17 Battery Place, New York City

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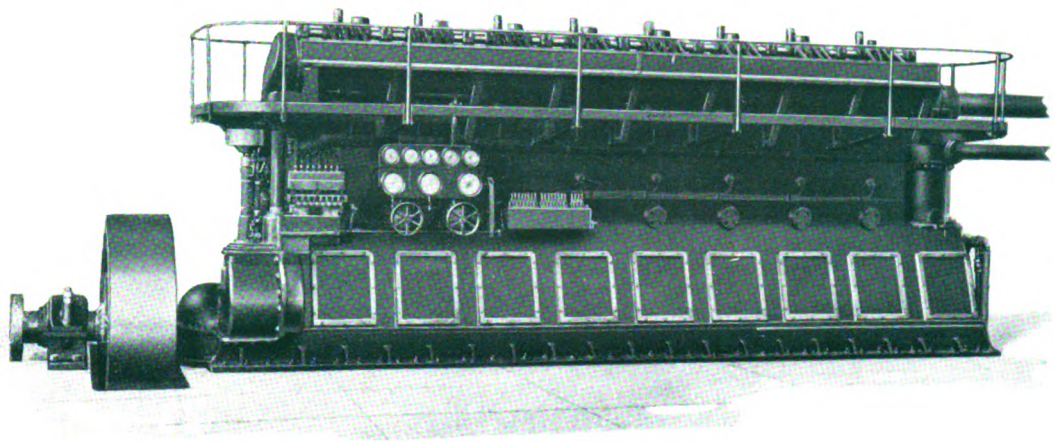
Bearings in Engines of

M. S. COURAGEOUS

Fitted with Laminum



The heavy strain and effort of powerful marine engines requires the most efficient shims obtainable. No other material can equal Laminum in performance, wear or efficiency. All the solidity of the solid shim with none of the disadvantages. Surface Smooth. Accuracy assured. "Keys up" with precision and preserves oil film. Laminum *peels*. Saves time and costs. Used by leading engine and ship builders everywhere.

Laminum comes in sheets 6" x 36", or we will make shims to your own B. P. S. Send for a sample of Laminum and complete details.

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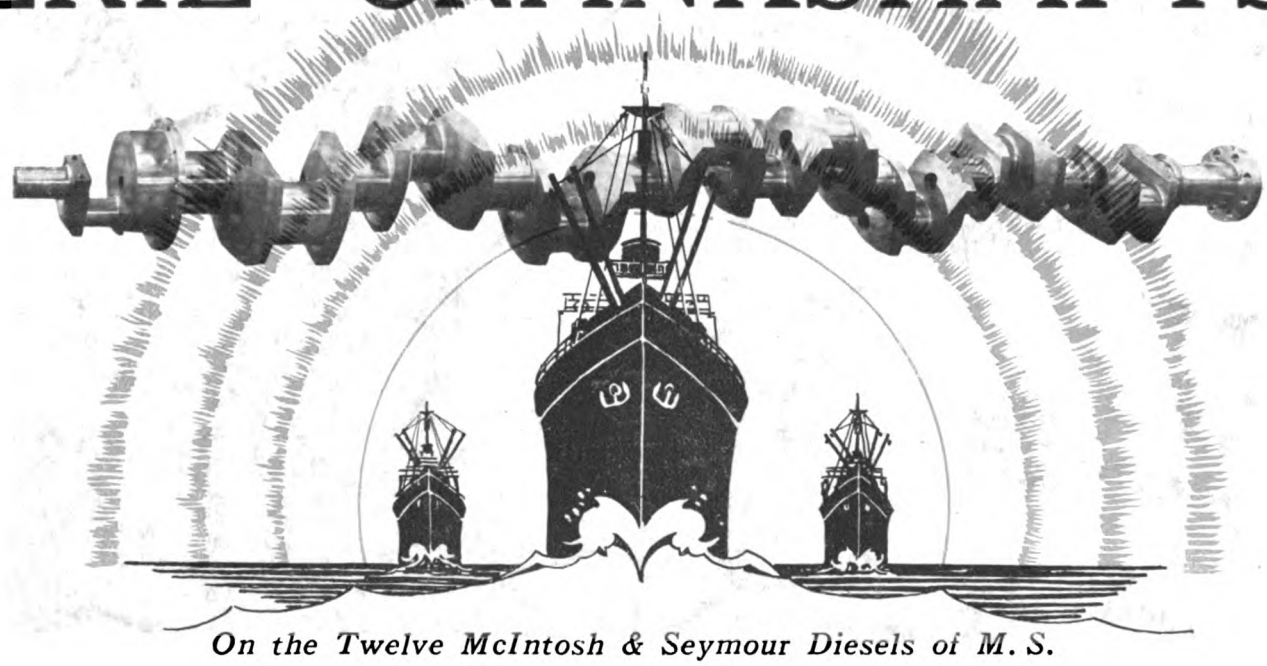
ERIE CRANKSHAFTS



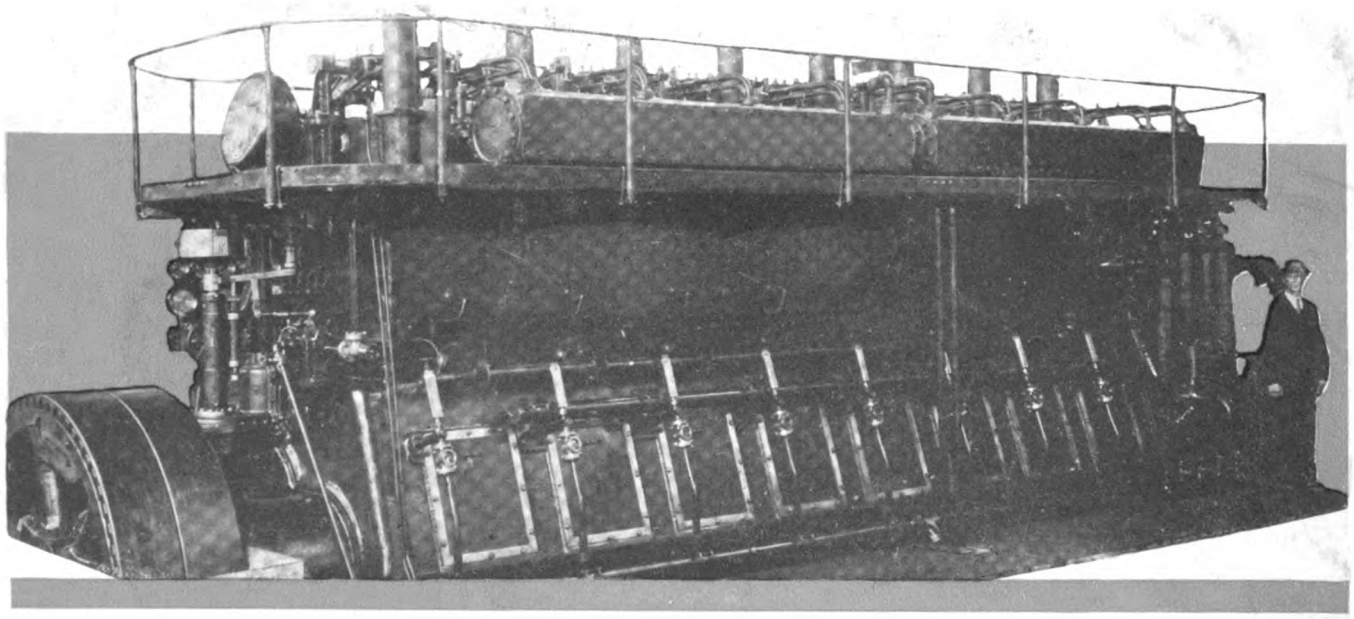
On the Twelve McIntosh & Seymour Diesels of M. S.

Courageous : : Defiance : : Triumph

ERIE crankshafts and connecting rods were selected for all twelve McIntosh and Seymour Diesel engines of the COURAGEOUS, TRIUMPH and DEFIANCE. Reputation for quality and ability to produce the steel forgings and finish the shaft to meet rigid chemical, physical and mechanical requirements were all important factors.

These twelve 29 ft. 2¼ in. long shafts have eight-throw cranks each with the air compressor crank as an additional integral part of the shaft. We bored a 4½ in. diameter lubricating oil hole. In the completely finished condition, each shaft weighs over ten tons. Pins and journals are of 13 in. diameter and the stroke, 24 in.

ERIE FORGE COMPANY
Erie, Pa.



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